

Air Conditioning & Refrigeration News

The Newspaper of the Industry

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Knight Reports 115 Spaces Sold For 1940 Show

New Exhibitors Include
Kelvinator, Carrier &
General Electric

CHICAGO—First round-up of exhibitors for the Second Annual All-Industry Refrigeration and Air Conditioning Exhibition has brought in commitments from 80 companies for a total of 115 spaces, reports M. W. Knight, chairman of the exhibition committee.

Included in the exhibitors who have already signed contracts for space in the show are the refrigeration department of General Electric Co., Kelvinator, Carrier, Universal Cooler, and Gale Products.

In addition to definite commitments, another dozen companies have signed tentative contracts for space. A total of 158 spaces are plotted for the show. Spaces already under contract exceed by a dozen the total number in the 1939 exhibition, Mr. Knight says.

The show will be held Jan. 15 to 18, 1940, in the Stevens hotel here. Formal invitations to participate have been sent to manufacturers of refrigeration and air-conditioning equipment, parts, materials, supplies, and accessories.

With the invitation, the exhibition committee is sending a four-page descriptive folder of the exhibition, stressing the theme that the industry will be on "dress parade" during the four-day show, in the largest hotel exhibition hall in the country.

In view of the success of the First All-Industry Exhibition last January, the committee has reserved the entire exhibition hall of the Stevens for use in next year's show, and has plotted all of the available space into booths on the floor plan which accompanies the invitation.

As was the case this year, the 1940 show will be a strictly trade show.

(Concluded on Page 3, Column 1)

\$20,000 Locker Plant Sought For Alabama

SELMA, Ala.—A farm bureau committee, headed by G. B. Suttles, has recommended establishment of a \$20,000 storage locker system adjoining the Selma Stockyards slaughter plant, to be financed with a federal loan.

Plans for the plant were drawn by the Gulf-York Co., Birmingham. Proposed building would be of brick, with receiving room, pre-cooler, cutting and wrapping room, freezing room, cold storage lockers, lard rendering facilities, curing, salting, and smoking room, and a farmer's meeting room.

Detroit Auto Firm To Make Truck Cooler

DETROIT—Motor Products Corp. will manufacture a refrigerating unit designed for highway transportation trucks under patents opened by a newly formed Michigan company, Articulare A. C. A. of Detroit.

An experimental unit is being installed in a Fruehauf trailer at the present time.

Federal Grand Jury Will Study Trade Group Management

WASHINGTON, D. C.—A Federal Grand Jury investigation into control of trade associations by management engineers will be launched shortly in New York City, the Department of Justice announced last week.

'Jerry on the Job'



FORREST E. JERNBERG

Jernberg To Head Mills Refrigeration

CHICAGO—Forrest E. Jernberg has been named to succeed Ray Polley as sales manager of Mills Novelty Co.'s refrigeration division. He assumed his new duties on July 1.

Mr. Jernberg, known as "Jerry" in the trade, has been in the refrigeration business for 12 years, five of them as head of his own business, and has helped set up several distributor servicing organizations.

For the past five years he has been with Mills as Central-West representative, serving dealers and manufacturers.

Don't Let Salesmen Specialize; Give 'em Full Line, Advises St. Louis Store

ST. LOUIS—Changing over its appliance department salesmen from "one-product" specialists to "all-product" experts has increased sales-per-prospect as well as overall appliance business for Stix, Baer & Fuller department store.

Like most first-class department stores with volume-selling appliance divisions, Stix, Baer & Fuller formerly had permitted—even encouraged—it's 11-man sales force to specialize in one appliance, in the belief that this specialization would enable any man to sell more confidently, impress his customers, and so forth.

Yet, after a close survey of the sales-per-prospect record of every man on the floor, and a tight check on related sales between various merchandise lines, the store completely discarded the specialization policy, replacing it with a novel "inter-selling" plan which permits every salesman to take his prospect to whatever merchandise is desired, without the necessity of calling in another man or waiting for the "call system" to materialize.

Reasons for making the change were:

1. One-product salesmen had no incentive to make calls on customers, once they were sold, because, if he has sold them his specialty, a refrigerator for instance, no potentialities in his field existed.

2. Salesmen selling one product had little interest in the management or promotion of another appliance. Naturally, he was interested in his own product's sales.

3. Not much effort was made by salesmen to learn the sales points of

appliances other than their specialties, with the result that customers were liable to be shunted off from one man to another, with consequent ill-feeling on the customer's part.

Although outwardly rather insignificant, these three points were important enough in practice to build an appliance department or ruin it, the store believed, depending on how each reacted upon another. Substitution of the inter-selling plan has removed these obstacles to smooth

(Concluded on Page 2, Column 4)

33,290 Commercial Units Sold In May By Nema Members

DETROIT—Moving along at the pace-setting clip they have maintained ever since last fall, world shipments of commercial refrigeration equipment by members of National Electrical Manufacturers Association totaled 33,290 units during May to pass by 8,332 their mark of 24,958 in the same month last year.

Virtually all products showed increases over marks for 1938, with commercial condensing units leading the way with 13,593 units, as against

(Concluded on Page 2, Column 1)

Kelvinator Announces 'Jubilee' Water Coolers

DETROIT—Kelvinator recently has placed on the market its "silver jubilee" line of water-cooling units covering both bottled and pressure-type models, and ranging in cooling capacity from 2½ to 15 gallons per hour.

Finished in golden bronze on a rust-proof galvanized metal casing, the water coolers in the pressure-type series have white porcelain tops which overlap side panels, sanitary angle-jet bubblers, non-splash drain plates, and adjustable bubbler control.

Drain outlet is protected from

(Concluded on Page 16, Column 1)

Buying a Refrigerator Is Like Buying a Hat, Saleslady Tells Price-Minded Prospects

TULSA, Okla.—Remember that old song—"Where did you get that hat?" By convincing a woman buying a refrigerator that style, wear, and service are just as important in her new refrigerator as in her best Sunday bonnet, Mrs. M. H. Gheen of Clark-Darland Hardware Co., Westinghouse dealer here, is selling over all objections of "price buyers."

"No matter what price a woman has in mind when she goes in to buy a hat—or a refrigerator—she always has in the back of her head the idea that she would like the best money can buy," reasons Mrs. Gheen. I always work on the 'clothes angle' when a woman buyer registers an objection to purchase price.

"I tell her that there are many places she can go in and buy a cheap hat or a cheap dress. Then I flatter by saying that I know she would never think of buying the cheapest clothes just because there was a bargain tag on it. By drawing a parallel in the purchase of a refrigerator, as concerns looks, service, and pride of possession, I break down the first barriers to so-called 'high cost.'

"When the woman agrees that she always chooses 'the best' in everything when she can afford it, I at once agree to show her by actual test how better merchandise, through longer and better service, can ac-

BIGGEST MONTHLY 1939 SALES GAIN Hung Up In May

Shipments To Outlets
In U. S. Totaled
268,100 Units

DETROIT—Showing by far their best gains this year, world shipments of household electric refrigerators totaled 287,100 units during May, more than 48% over their total of 193,500 in the same month last year, according to estimates by AIR CONDITIONING & REFRIGERATION NEWS.

Shipments to distributors and dealers in the United States only rose more than 52% during the month, as compared with last year, totaling 268,100 against 172,700 in May, 1938.

May shipments brought the world total over the million-unit mark this year, a point not reached until June last year. For the five months, world shipments totaled 1,191,100 units, as compared with 883,300 in the same period of 1938.

Shipments by 17 member-manufacturers of National Electrical Manufacturers Association totaled 272,787 units during May, as compared with 183,870 in the same month a year

(Concluded on Page 3, Column 1)

Cordiner Will Become President of Schick

BRIDGEPORT, Conn.—Ralph J. Cordiner, manager of General Electric's appliance and merchandise department with headquarters here, on Aug. 1 will become president of Schick Dry Shaver, Inc., Stamford, Conn. No announcement has been made regarding his successor.

One of the youngest executives in the electric industry, Mr. Cordiner has been associated with the selling of electrical appliances during the 17 years since his graduation from Whitman College in Walla Walla, Wash.

His first position was a part-time job with Pacific Power & Light Co.

(Concluded on Page 2, Column 2)

Cooled Service Station Attracts Truck Drivers

VINCENNES, Ind.—Air-conditioned quarters for truck drivers resting at the "Beacon Light" super-service station between runs has boosted summer business for Dr. J. H. Hammond, who operates the station on U. S. Route 41 just south of town.

Catering exclusively to drivers of heavy trucks, the 40 x 60-foot stone building was erected by Dr. Hammond as a headquarters for all major highway shipping lines running north and south. During two years growth the business has reached a point where it is a central trucking point for five states.

For the dealer or power company actively engaged in selling the all-electric kitchen on the step-by-step plan—or as an ensemble, there is available kitchen planning kits, booklets on the modern all-electric kitchen, counter cards, a series of six newspaper advertisements, car cards, an animated window display sign, and a sound slide film which tells of how one family became convinced it should have a modern kitchen.

A Delco oil heating system was installed by E. R. Brentlinger, distributor for Frigidaire refrigeration and air-conditioning products here.

(Concluded on Page 3, Column 2)

tually be the cheapest in the long run."

She takes the prospect's name and address—with the promise that she will not "bother her"—and then follows the discussion in the store by offering to place a refrigerator in her home on trial. From the very beginning Mrs. Gheen refers to the refrigerator as "your box," thus planting the germ of ownership in the woman's mind. She never lets down on the idea that good taste is just as important in a refrigerator as it is in clothes or house furnishings.

A meter attached to the trial refrigerator to measure operating costs is an important part of the economy story that Mrs. Gheen presents. When the refrigerator is first installed, she gives a careful demonstration of all the parts—just what the refrigerator will do. With that, she's off.

In about a week she returns to ask the woman how "her" refrigerator is performing, and if it didn't live up to all the promises made. "Well," says Mrs. Gheen, "in nine cases out of ten the woman has received so many compliments on 'her' refrigerator, and has so proved to herself that it is much more economical than a bargain box, that she wouldn't give up 'her' refrigerator any more than she would give

(Concluded on Page 2, Column 4)

Individual Machines Lead In Commercial Sales Tabulations

(Concluded from Page 1, Column 4) 10,181 last year, and ice cream cabinets running a strong second with 6,127 units, as compared with 4,951 in May, 1938.

Shipments of most other packaged commercial equipment continued to lead comparable marks for last year during the month. Beverage coolers showed sales of 5,546 units, as compared with 5,103 last May, and pressure water cooler shipments reached 2,612 units, against 2,010 in the month a year ago.

In the United States only, May shipments by Nema members totaled 28,751 units, compared with 21,796 last year. The U. S. figure, in addition to 10,978 commercial condensing units, included 5,580 ice cream cabinets, 5,340 bottled beverage coolers, 2,415 pressure water coolers, 686 bottle-type coolers, and 42 milk cooling cabinets, complete.

Commercial evaporator shipments amounted to 4,071 units, against 5,017 last May, and was one of three classifications in which this year's sales were under comparable 1938 totals. The others were beverage coolers without high sides, in which this year's 81 units were two short of last May's figure; and ice cream holding cabinets, which had shipments of 434 units last year against 373 this year.

Shook & Fletcher Gets Bank Cooling Job

BIRMINGHAM, Ala.—The Birmingham Trust & Savings Co. has awarded a \$20,000 contract to Shook & Fletcher Supply Co., Carrier distributor for the air conditioning of its bank rooms and offices. The equipment will be installed in a penthouse on the roof. This will be the first bank in the city to have complete air conditioning.

Century's Motor Specialization + Correctly Engineered Application = Satisfaction and Economy.

Your Choice of a Motor Directly Affects Your Profits

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New York • Omaha
Philadelphia • Pittsburgh
Rochester • Salt Lake City
San Francisco • Spokane
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One of the Largest Exclusive Motor Manufacturers in the World

Leaves G-E



RALPH CORDINER

Cordiner To Head Razor Concern

(Concluded from Page 1, Column 5) and from money earned in selling electrical appliances he financed his four years at college. Then he became associated with Edison General Electric Appliance Co., with headquarters at Portland, Ore., and in five years became Northwest manager. In 1930 he became Pacific Coast manager.

When the Hotpoint heating device section was transferred from Chicago and consolidated with G-E's merchandise department at Bridgeport in 1932, Mr. Cordiner went with it as manager and chairman of the management committee. Two years later he was named assistant manager of appliance sales, and in 1935 he became manager of the radio division.

A year later he was promoted to assistant general manager of the appliance and merchandise department, and since January, 1938 has been its manager.

Bureau Fall Plans Call For Campaign On 5 Appliances

(Concluded from Page 1, Column 3) ments of the magazine advertisements, a special direct mail campaign of two pieces, a series of five newspaper advertisements, a selling guide which answers the double purpose of training for salesmen and a handout piece for prospects, and a visual manual, size 8½ x 11 inches, which may be used in the actual selling session with the prospect.

In addition there will be a fall window display contest and the two quarterly retail salesmen's contests for the best letters on the subject "How I Sell Electric Water Heaters."

Backbone of the electric roaster campaign has been a series of national advertisements in McCall's Magazine, Woman's Home Companion, and The Saturday Evening Post, and this schedule is being continued right through the year.

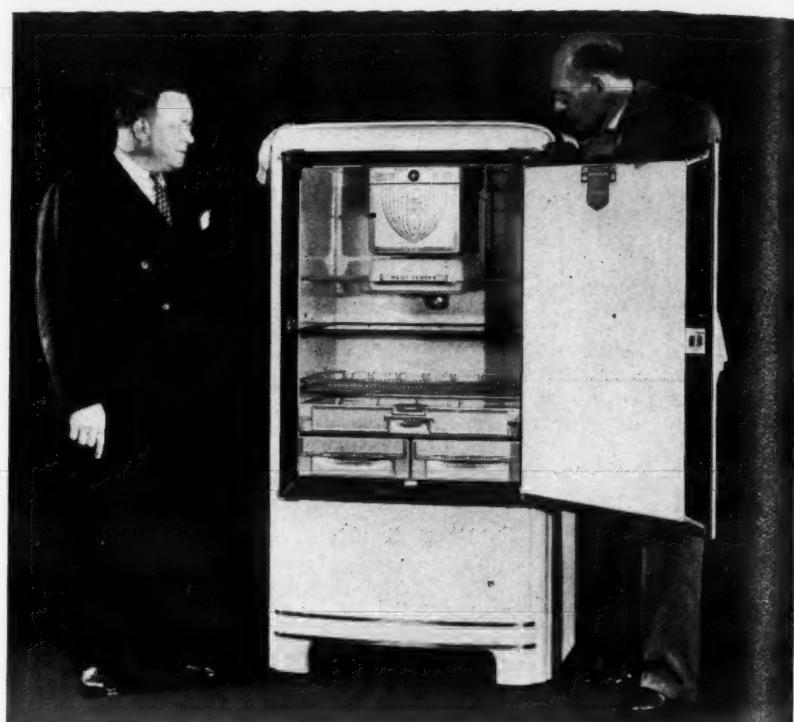
Material which the bureau will furnish dealers to enable them to capitalize on this national advertising will consist of window banners, counter cards, tie-in newspaper advertisements, radio spot announcements, jumbo posters of national advertisements, and a sales training booklet for retail salesmen. In addition, a sound slide film will be available for use at dealer meetings.

The complete plan book for the fall campaign on roasters will be mailed out about Aug. 15, bureau officials declared.

Wisconsin Power Co. Sales Show Gain In May

MILWAUKEE—Electric household refrigerator sales of Wisconsin Power & Light Co. and the dealers in its territory totaled 578 units in April, compared to 396 units in March. Electric ranges, water systems, and brooders also showed sales increases in April.

5 Millionth Frigidaire



Frigidaire recently claimed a new record in electric refrigeration production by a single manufacturer when its 5,000,000th unit was released from production lines. Removed from normal shipping routine to have its picture taken, the 5,000,000th Frigidaire is shown here with E. G. Blechler (left), general manager, Frigidaire Division, and C. F. Kettering, vice president, General Motors Corp.

St. Louis Store Quits Plan of Having Salesmen Specialize on One Appliance and Tells Why

(Concluded from Page 1, Column 4) selling, and carries the extra appeal of encouraging cooperation between salesmen as well as between salesman and customer.

All specialty salesmen in the store's electrical departments inter-sell under the new plan, and both they and the management are encouraged over results.

For example, one veteran salesman who had reached a peak of several hundred refrigerators in 1937 formerly had little reason to contact his past customers, since he had no related merchandise to sell. With the adoption of the inter-selling plan, however, he got into action on his user file, and sold several of them another appliance or some related merchandise which formerly had been handled by another man.

That's another advantage in the plan, in the opinion of R. J. Winter, buyer for the section.

"All our men keep files of prospects, as in other stores," he said, "but naturally they disliked the idea of turning over hard-earned prospects to other men. But when you can make two or three sales to one prospect, the salesman can push all appliances rather than 'shooting the works' on one product."

Inauguration of the new system also has solved the problem of how

many salesmen to employ. Salesmen are matched with the department's earning power, with the result that each man earns a fair weekly income and the store's volume is maintained evenly.

Salesmen turnover also has been cut to the bone by the new plan, and the best type of man is attracted by the inter-selling idea and its earning possibilities.

The store's electric refrigerator sales force has been multiplied by four through the plan, and now concentrates on this line, selling down from it to other appliances. All salesmen spend their working day on the floor, making outside calls and call-backs in the evening. Canvassing is "out," except for night calls.

Salesmen have been trained to begin their refrigerator selling efforts at the \$100 minimum, and to "sell up" to the higher-priced models by showing how much more in convenience and usability these units afford. A feature-by-feature presentation of low and high-priced models is the most effective "selling up" method, the store finds. This holds true of all major appliances.

The method also provides a neat "retreat" for the salesmen, for if the prospect balks at the more expensive model, he can always go back to the low-price "starter" appliance.

Appliance Saleslady Works a 'Clothes Angle' In Selling To Women Prospects

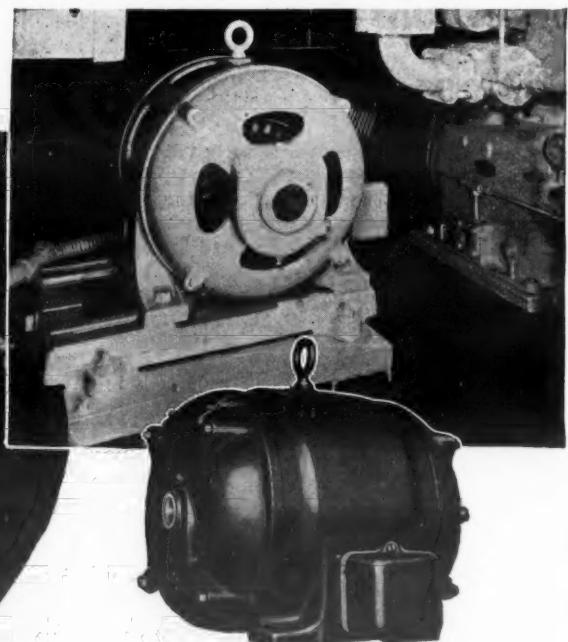
(Concluded from Page 1, Column 5) up a new hat that her husband and friends admired."

Women aren't the only refrigerator buyers that are given the "old convincer" by a reference to the similarity in good clothes and good appliances. Very often Mrs. Gheen challenges a man as to whether he would buy a cheap suit—when he knows how it will look after he is out in the rain and what poor service he will get from it. Clothes—as always—make the man, and Mrs. Gheen makes the sale.

Mrs. Gheen does not work in the main store of the Clark-Darland Co., but does her selling from the store's display on the main floor of the Public Service Co. of Oklahoma in Tulsa. And although many other appliance stores have displays there, Mrs. Gheen is the only one who has made a consistent success out of the display opportunity made available by this utility.

When she gets a particularly tough "price" customer, she bundles her into a taxi and takes her to the main display room of the Clark-Darland Co., where the larger selection of models—or perhaps a good used box—will bring the prospect into camp. "Never let a 'price buyer' get away," says this saleswoman.

There was a bit of advice that



adapted to the exacting demands of these specialized fields.

For satisfactory profits and satisfied customers you need motors that reduce the necessity for service calls and deliver efficient, uninterrupted performance throughout an exceptionally long life.

You get all these advantages—and more—in Century motors: Because Century successfully pioneered the motorization of air conditioning equipment long before the separate units were referred to as air conditioning.

For example—you get the least voltage drop and light flicker at starting, with the Century type RS Repulsion Start Induction Single Phase Motor. This is so because the repulsion start motor has the highest starting torque and by far the lowest starting current of any of the single phase group of motors. Where starting current is a problem, specify Century Type RS.

There's a Century Motor from fractional H.P. sizes to 600 H.P. to properly fit any air conditioning, refrigerating or power heating requirement. Century's motor specialization is your assurance that your application is properly engineered. It will pay you well to consult the Century Motor Specialist in your locality. Call him in.

CENTURY ELECTRIC COMPANY
1806 Pine Street

St. Louis, Mo.

Mrs. Gheen offered to appliance salesmen. She said that a great many of them know so little about their products that many sales slip away through this ignorance. "In fact," says she, "the main reason that I got back into the appliance selling game after I retired from it was because when I myself went to buy an electric range I couldn't get an intelligent demonstration from any salesmen."

"Know all there is to know about what you are selling, give them a 'wow' of a demonstration, and you will prove that price is unimportant after all," she finished.

Orders Await Pearce on Return From Vacation

ATLANTA—Real back-to-work welcome for E. Fay Pearce, Atlanta division sales supervisor for Georgia Power Co., who was the \$15,367 in orders he found awaiting him when he returned from his June vacation. The appliance sales were made in a special "E. F. Pearce Day" staged by his salesmen. W. H. Sharpe was top salesman for the day, with \$863 while the West End store led in this division with \$3,438.55.

Director

MILDRED HICKMAN

Mildred Hickman Heads Hotpoint Home Ec. Dept.

CHICAGO—Miss Mildred Hickman has been appointed director of the home economics division of Edison General Electric Appliance Co., Inc. to succeed Mrs. Mary Lowell Schwinn, who is resigning the position she has held since 1937 to devote the major portion of her time to her home and family, while engaging in private research.

Miss Hickman has been a member of the Hotpoint home economics division since 1926, and has been director of refrigeration home economics since 1938. She is a graduate in home economics of the University of Missouri.

In her new position, Miss Hickman will direct activities of the entire Hotpoint staff of field home economists, as well as the headquarters home economics staff, and the Hotpoint test kitchen. Hotpoint's home economics staff is the oldest in the appliance industry, and one of the largest.

Exhibit List For '40 Show Ahead of 1939 Total

(Concluded from Page 1, Column 1) affair, and attendance will be limited to persons connected with concerns in the 20-odd branches of the refrigeration and air-conditioning trade. Only firms manufacturing equipment, or actively affiliated with the industry, are being invited to exhibit at the January show.

In view of this limitation, the committee points out that the All-Industry Exhibition will be the only exclusive national refrigeration and air-conditioning show to be held in 1940.

The folder also calls attention to the large number of coordinated conventions and meetings to be held by leading national technical societies and trade associations in connection with the show, and to the All-Industry Banquet to be staged cooperatively by a committee composed of representatives of these organizations.

Represented on the banquet committee will be the Air Conditioning Dealers Association, American Society of Refrigerating Engineers, the Refrigeration Division of National Electrical Manufacturers Association, Refrigeration Equipment Manufacturers Association, Refrigeration Service Engineers' Society, and National Refrigeration Supply Jobbers Association.

Household Refrigerator Sales Up 50% In May

(Concluded from Page 1, Column 5) ago. For the first five months of this year, world shipments by Nema members amounted to 1,141,848 units, against 839,249 for the corresponding months of 1938.

Nema shipments to distributors and dealers in the United States totaled 254,805 units in May this year, as compared with 167,185 in the same month of last year.

New York continued its lead in the sales-by-states tabulation, with 34,353 units; Pennsylvania was second with 24,795; and Illinois third, with 22,817.

Truck Drivers Go For Cooled Lodgings on Overnight Hauls

(Concluded from Page 1, Column 5) Dr. Hammond discovered that the cottage and dormitory business decreased at least one third during hot weather, and ordered the installation of Frigidaire air-cooling equipment to complete the system.

Since the 3-ton conditioning system was installed in the dormitory, summer business has stepped up to the point where as many as 70 drivers now use the building at once for their lodging.

Cafe and cottage business was increased 20% at the same time, by the installation of three 3-ton Frigidaire units serving two cabins each. Mr. Brentlinger also sold Dr. Hammond another 3-ton system for use in his hospital clinic in Vincennes, a charitable institution, making a total of three complete air-conditioning systems sold to one customer during the current year.

'Sterilaire' Germ Killing Lamp For Use In Refrigerators Being Sold on Coast

LOS ANGELES—A new germ-killing lamp called the "Sterilaire" is now being sold to dealers and service men for re-sale to their customers in various lines of business. Refrigeration Service, Inc., parts jobber here, is one of the agents for the equipment.

Manufactured by Ultra-Violet Products, Inc., Los Angeles, the Sterilaire unit is available in lengths from 9½ to 30 inches. An outstanding feature of the units are their ease of installation, it is claimed.

SELF-CONTAINED

Standard units are completely self-contained. The double-length transmitting tube, which is hairpin-shaped, is mounted under a bright aluminum finished hood designed for greatest ultra-violet reflection. Transformer, fuse, switch, and porcelain housing for electrodes are contained in a small box at one end of the Sterilaire unit.

All outside surfaces are a wrinkle finished black. Installation is said to require only affixing with the hooks or clamps supplied, and plugging into any standard electrical outlet.

High intensity of the lamp's rays is obtained by balancing an electronic discharge through mercury vapor in a vacuum. Tubes themselves are of glass especially made to screen out undesirable and inefficient rays, it is claimed, and will retain their efficiency for a full six to eight months of continuous operation. Replacement is recommended at the end of that period.

HAIRPIN-SHAPED

Because each unit contains a hairpin-shaped tube, effective length is doubled, it is claimed. The 9½-inch unit, for example, contains 19 inches of radiating tube, the 30-inch unit contains 60 inches.

In the retailing, processing, and

handling of food, the units are expected to find a wide market. In walk-in refrigerators or display cases, the units are said to help retain natural color to meats stored, reduce mold and bacteria growth, decrease trimming loss, and permit a temperature of 42° instead of the usual 36°.

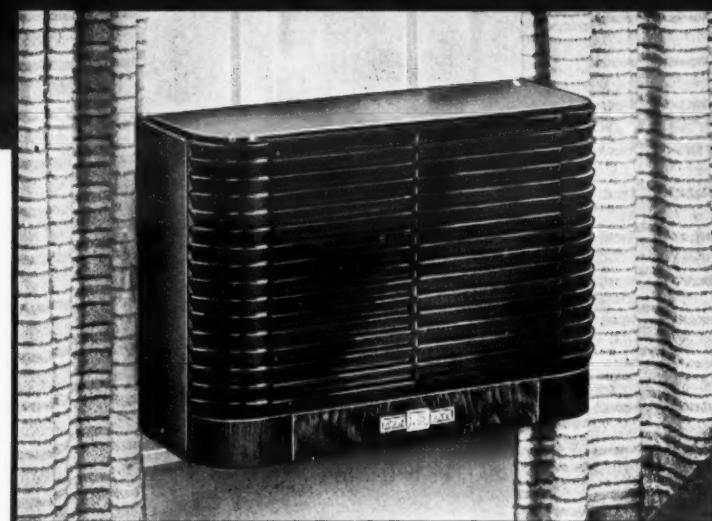
A special Sterilaire unit is available for sterilizing glasses in restaurants, cafeterias, hotels, and bars. The unit is affixed to a table stand which permits radiation close to the glasses, so that germs are killed in faster than normal time.

PRICES LISTED

As listed in Refrigeration Service's 1939 catalog, the lamps carry the following list prices: 9½-inch length (tube length 18 inches), \$29.50; 18-inch length (tube length 36 inches), \$32; 24-inch length (tube length 48 inches), \$34.50; 30-inch length (tube length 60 inches), \$37.50.

Replacement tubes for the 9½-inch unit are priced at \$10.50; for the 18-inch unit at \$12; for the 24-inch unit at \$13.50; and for the 30-inch unit at \$15.

Philco Dealers Are Making PHENOMENAL SALES RECORDS!



Still Time For You To Cash-In On YORK COOL-WAVE PORTABLE AIR CONDITIONERS

Yes, there's still time for you to get in on this new, money-making business! Everyone wants and needs air conditioning...and York Cool-Wave gives it to them at a price they can afford to pay. Think of it—genuine, portable air conditioning for as little as \$150...and only \$15 down! Full profits for you—no trade-ins. A complete line for any size room. Installation made in 30 minutes, without wiring, water connections or alterations. Hurry—mail the coupon now and cash-in with Cool-Wave!

and CONSERVADOR ELECTRIC REFRIGERATORS

Conservador offers the one really new refrigerator sales feature of the year—the patented shelf-lined Inner Door. A feature that prospects can see, understand and appreciate at a glance...that appeals because it saves time, saves space and saves money. And when you offer a prospect such tangible savings as these...plus every other fine refrigerator feature...all at NO EXTRA COST—you're bound to make sales! Mail the coupon for complete information and join the thousands who are making money with Conservador!

See your Philco Distributor or MAIL COUPON NOW!

PHILCO ALL YEAR 'ROUND

HOME RADIO • AUTO RADIO • TELEVISION • PHONOGRAPHS
RADIO TUBES • PARTS • REFRIGERATORS • AIR CONDITIONERS • DRY BATTERIES

FROM all over the country Philco dealers report the astounding success of Philco's two new products—York Cool-Wave Portable AirConditioners and Conservador Electric Refrigerators. Week after week sales have climbed steadily...breaking all previous records for both dollar and unit volume.

And these phenomenal results are not confined to any one section of the country or to any one type of dealer. Large and small...in big cities and small villages...the story is the same. There must be a reason! Why not mail the convenient coupon for full details of how you, too, can profit with Philco!



PHILCO RADIOS & TELEVISION CORPORATION
DEPT. NO. 214, PHILADELPHIA, PA.

Without obligation, send me complete information on

- York Cool-Wave Air Conditioners
- Conservador Electric Refrigerators

NAME _____

ADDRESS _____ COUNTY _____

CITY _____ STATE _____

Distributor-Dealer Doings

'Bug' Smith, Ex-Jockey, Finds New Adventures In Refrigeration

By Henry Knowlton

LEXINGTON, Ky.—When J. Ralph Smith, who is known to intimates in the refrigeration industry as "Bug," was a small boy, he had ambitions to become a jockey. As an exercise boy on the race horse farm of Col. E. R. Bradley he was exposed to the fascinating business of breeding, training, and racing horses. It was not long, however, before Bug started to grow and a kindly doctor told him that he would soon become too tall and altogether too heavy to be a jockey.

Bug still prefers to live in the blue grass country, although a multitude of interests and activities have taken the place of his ambition to become a professional jockey. Today he operates the Kelvinator department of the Combs Lumber Co., largest building material supply house in the Lexington area. After living and working in many remote corners of the globe, Bug still considers Lexington "the capital of the world."

It was in 1915 that Bug, then in high school, observed the experiments in air conditioning which were being conducted at the University of Kentucky by the late F. Paul Anderson, then Dean of the College of Engineering, and Willis H. Carrier. As a part time employee of the University, Bug had a chance to work with tools for two men who were intent on developing a new standard of comfort and health for the civilized world. Bug became interested in air conditioning and refrigeration, and has stayed at it, most of the time, ever since.

"SHOULDER ARMS"

Formal school days were over in 1917 when Bug enlisted in the United States Army and later was stationed with the Army of Occupation in Germany at the end of the World War. After the war he turned to professional athletics, pitching for

the Decatur Commodores baseball team of Decatur, Ill., and boxing for the Chicago Athletic Club. This was a lot of fun, Bug reports, but did not provide his restless soul with enough excitement, so in 1921 he joined the United States Navy.

NAVY DAYS

Fortunately for Bug, his first assignment was on the U. S. S. New Orleans, which sailed from Brooklyn on a "goodwill" tour of the principal ports of the world, winding up in Vladivostok, Siberia. Here he was put to work on the Russian relief program and engaged in the serious business of guarding a large shipment of International Harvester products which had been shipped to the fallen Russian government.

The next year, 1923, found Bug on the supply ship, U. S. S. Abaranda, stationed in the Phillipine Islands. His genius for repairing and adjusting refrigeration machinery soon got him the job of taking care of refrigeration on all ships stationed at Cavite, P. I.

In 1924 he was assigned to the submarine S-14, and saw active service as an electrician's mate. Bug was learning a lot of things about machinery and the exacting requirements that made up the discipline of any submarine crew. Later he returned to Brooklyn Navy yard, and was honorably discharged from the Navy in April of the next year. Two more years of service would have assured Bug of retirement pay for the rest of his life, but he relinquished this in favor of returning to civilian life.

Back in Lexington, Ky. Bug became installation and service manager of the M. H. Moise Co., Kelvinator distributor for Lexington and Louisville. By 1926 the company had taken on the Copeland franchise and Bug became manager of the Louisville branch of the company, handling

both sales and service.

The next year he became affiliated with the Copeland organization at Mt. Clemens, Mich. when George Mason, now president of Kelvinator, headed the Copeland company.

BUG STORY

It was at a Copeland meeting for refrigerator dealers and service men that the nickname "Bug" first appeared. Smith watched a factory training expert attempting to explain the mysteries of refrigeration to a group of small town dealers. After a considerable time it became apparent that the expert was not getting very far with his description of B.t.u. as the men present asserted that they still did not understand what it was all about. Smith asked permission to take over the meeting and explain refrigeration to the dealers in his own way.

"Boys," he said, addressing the perplexed dealers, "down in Kentucky where I come from we don't know much about B.t.u. and all that sort of thing, but we do know about stills up in the mountains, and we know about the 30-30 rifles that are used to raid them stills. Now a B.t.u. is just like a 30-30 bullet, or a big bug. It goes through the copper tubing like it was bein' fired through with a rifle, or just like it was a bug crawlin' through pores in the tubing.

"Now when that bug gets inside the tubing it is carried away by a stream of refrigerant, just like a hickory nut floats off when you throw it in a swift mountain stream. You never mind worrin' about B.t.u.—just think of them like they was bullets, or bugs, or a hickory nut you threw in the water."

Dealers present at the meeting began to get the idea of bullets, bugs, hickory nuts, and B.t.u. and before long J. Ralph Smith was telling the story of refrigeration to many other dealers and at the same time the nickname stuck. Members of the industry who "knew him when," still call Ralph "Bug" and he does not mind—it's as good a name as any in his way of thinking.

By 1930 Bug was transferred to the Dallas-Copeland Co. at Dallas, Tex. The next year he returned to Lexington to start as an independent refrigeration service man, then joined the Lexington Refrigeration Co. and in 1936 became manager of the Kelvinator department of the Combs Lumber Co.

In 1931 Bug married his boyhood sweetheart, the girl he had courted in Lexington before the war.

From his roving and adventurous past it would not be a very good gamble to say that Bug has "settled down for good" but it would be a 10 to 1 shot with any bookie that no matter where Bug Smith goes he will eventually return to his beloved blue grass country and Lexington, Ky. "the capital of the world."

Anderson Goes To Sterchi Bros. as Manager

NASHVILLE, Tenn.—R. D. Anderson, formerly retail sales manager of the East Tennessee Electric Co. at Knoxville has been appointed manager of the appliance department of the Sterchi Bros. Furniture Co. here.

Vining Gives "Sentences That Sell"—Refrigerators

BALTIMORE—Launching an "Opportunity Days" promotion on electric refrigerators, several hundred salesmen were guests of the Baltimore branch of Westinghouse Electric Supply Co. at a breakfast meeting in the Lord Baltimore hotel.

Howard W. Jackson, mayor of Baltimore, was guest of honor at the affair, and "Sam" Vining, Westinghouse refrigeration specialist, was chief speaker. J. T. Ridgeway, district manager of Wesco, presided.

Dunkley Appointed To New York Post By S-W

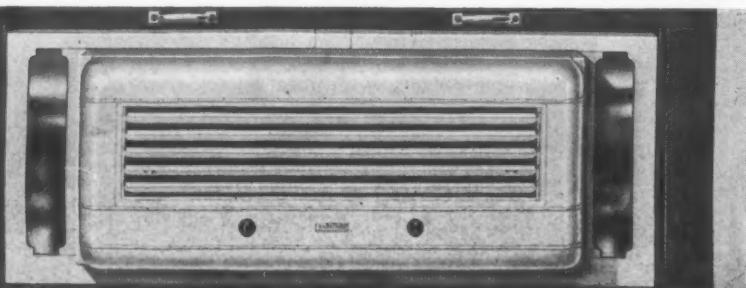
NEW YORK CITY—H. P. Dunkley, formerly northeastern district manager for the radio division of Stewart-Warner, has been given the newly created post of manager for the metropolitan district of New York.

J. R. Brandenburg has taken over Mr. Dunkley's duties in the northeastern district, except for the Greater New York territory.

WANTED: DEALERS AND DISTRIBUTORS for the new 1940 model

SILENTAIRE

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Here's a profit-making, easy-to-handle sales item that can do a real job in helping to increase sales all year 'round . . . a modern, electrically-operated window ventilator that really VENTILATES, CIRCULATES AND FILTERS AIR — PROVIDES LOW-COST COMFORT COOLING BY NATURAL METHODS — SHUTS OUT DISTURBING NOISES —

SELLS INSTALLED FOR LESS THAN \$100.00

Write NOW for full details on dealer franchise in your territory.



BERGER MANUFACTURING DIVISION
REPUBLIC STEEL CORPORATION

CANTON, OHIO

Distributor 'Looks Over' Crosley Car



A. H. Zimmerman, head of Republic Supply Corp., Detroit, takes a look at the new Crosley car which his firm will distribute. In the rear seat is T. K. Broderick, manager of Republic's heating department, and at the wheel ready to "go places" on selling the little automobile is Mr. Zimmerman's son, Kent.

Crosley Car Makes Hit In Motor Capital On Initial Showing

DETROIT—The new Crosley car was unveiled to the public here last week by Republic Supply Corp., Crosley distributor in this territory, and its appearance in the company's showrooms and in a special display at the J. L. Hudson Co. department store brought out fair-sized crowds and indicated that the midget automobile has caught the interest of this motor capital of the world.

The car is also displayed at Weil & Co., Crosley furniture store dealer, and arrangements are being made to distribute the car to some of the 250 dealers of Republic Supply. An order has been placed with the Crosley Corp. for delivery of 300 of the cars.

Initial acceptance of the car has been satisfactory, according to A. H. Zimmerman, head of the distributorship, and many persons are being drawn to their showrooms and to the display at the Hudson store to view a car "built to sell under \$400." The car is not being sold at Hudson's, but an arrangement with the store allows salesmen of Republic Supply Co. to demonstrate the features of the car. The display is in the men's furnishings department, and large numbers of the curious and many actually "in the market" have come to take a look.

At the Weil furniture store the cars are displayed in the bedroom furniture department on the ninth floor. Salesmen with selling ex-

perience in both furniture and automobiles have been hired to merchandise the car. Arrangements for prospect demonstrations are not yet complete, but Mr. Hart, department manager, revealed that within the near future the store hopes to be able to give driving demonstrations to the many people who have expressed interest in the car.

Distributor Zimmerman is bullish about future sales possibilities of the newest Crosley product, which he calls "neither a challenge nor a threat to the regular-priced automobile field." Mr. Zimmerman is no newcomer to the automobile selling game, having started out with Continental Motors in 1904. He was secretary-treasurer of this company for 14 years. He entered the radio and appliance distributing in 1923.

"This car," said Mr. Zimmerman, "serves an entirely new market, a market that up to now has not existed. Its main features are low cost and economy of operation. For commuting purposes, for a housewife's shopping, for young people, and as a business-pleasure car for radio and appliance service men and others, it seems like the right answer to high overhead and purchase costs."

Plans are now under way to set up outlets in some dealerships throughout the territory served by this distributor. This will be governed, Mr. Zimmerman pointed out, by conditions that allow display facilities in a dealer's store. He feels that a product with the appeal of the new car will undoubtedly create buying interest in the dealer's other products.

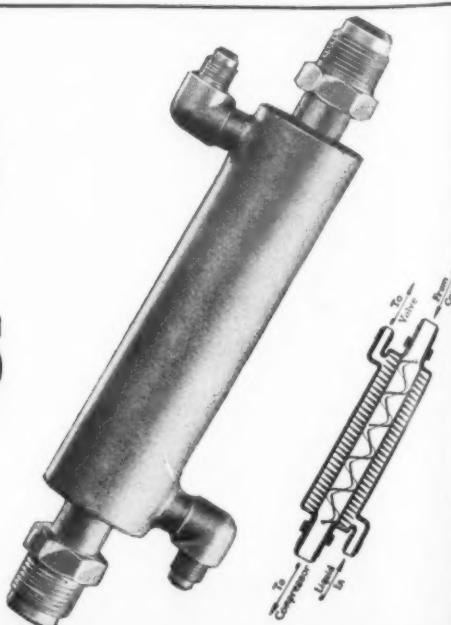
Retail price of the car delivered in Detroit is \$356.70 for the convertible coupe, and \$382.45 for the convertible sedan.

PEERLESS Capacity BOOSTERS

CUTS RUNNING TIME of compressor by giving BETTER COIL EFFICIENCY.

A necessity on every coil installation.

10 sizes for installations from 3,000 to 600,000 B.T.U. per hour.



PEERLESS OF AMERICA, INC.

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11,20 34TH STREET 3000 SOUTH MAIN ST. 2218 N. HARWOOD ST. P. O. BOX 816
LONG ISLAND CITY LOS ANGELES CALIF. DALLAS TEXAS DETROIT MICH.

Commercial Refrigeration

Meat Packing Plant At Fair Demonstrates Right Temperatures For Various Meats

NEW YORK CITY—The transplanting of a complete deluxe meat packing plant to the New York World's Fair has called for a refrigeration setup similar to that in any large plant throughout the country, and demonstrates the exact conditions under which the various packing plant products are best preserved.

The exhibit of Swift & Co. is really a meat packing plant in a "glass house." Five large refrigerating machines are used to assure even temperatures, prevention of mold, sweat, fog, etc.

One refrigerating unit and one cold diffuser is used for each of the following purposes:

(1) To hold bacon storage room at 33° F. Temperature must be maintained close to freezing to protect the bacon and harden it properly for slicing.

(2) To hold the bacon slicing room to 58° F. with a low dewpoint.

It is explained that the relatively high temperature is necessary to prevent loss of nimbleness in oper-

ators' fingers and allow lighter clothing for freedom of movement. The low dewpoint is required to prevent condensate from forming on the bacon which remains at a low temperature during its short stay in the room. The bacon must be kept cold in order for the slicing machine to operate properly. Bacon too cold or too warm will not slice uniformly.

(3) To maintain a low temperature, approximately 32° F. in the frankfurter meat curing room.

(4) To maintain a temperature of 62° F. in both the frankfurter "stuffing" room and in the frankfurter packing room.

(5) To hold the ham storage room to 29° F. The low temperature maintained with this cold diffuser requires defrosting once a day.

Swift's exhibit at the New York World's Fair is more than a show. It is a plant in production. Each night trucks arrive to carry the products to the market and to World's Fair concessionaires.

Health Official Says Cooling Bettered Quality of Milk

LOUISVILLE, Ky.—Increase in use of mechanical milk-cooling equipment by farmers in this area has definitely improved the quality of the milk, reports H. L. De Lozier, chief of the milk division of the Louisville Board of Health.

He emphasized that, while forward strides in the installation of proper cooling facilities on dairy farms is being made, much work remains to be done.

Use of milk coolers has increased from 78 in 1936 to 400 in 1938. Mr. De Lozier pointed out, and the percentage of milk mechanically cooled rose during that period from 11.85 to 40%.

Improvement in milk quality is evidenced by the reduction in bacterial counts of Grand "A" pasteurized milk from 4,000 per c.c. in 1936 to 1,000 per c.c. in 1938.

"Last year more than 20,000 gallons of milk were rejected because of high temperatures," Mr. De Lozier said. "Many dairymen also lost their grades because of high bacterial counts, the direct cause in many instances being improper cooling."

Seeger & Harwood Head Cutler-Hammer Depts.

MILWAUKEE—E. W. Seeger has been named manager of the development department and P. B. Harwood manager of the engineering department of Cutler-Hammer, Inc.

Mr. Seeger formerly was in charge of the company's production engineering department. He has been closely associated with the development of new apparatus and holds a considerable number of patents on motor control apparatus. He joined the Cutler-Hammer organization in 1913.

In addition to being a fellow of the American Institute of Electrical Engineers and a member of the Engineers Society of Milwaukee, Mr. Seeger has been active for some time on the codes and standards committee of National Electrical Manufacturers Association.

Mr. Harwood has been with Cutler-Hammer for over 20 years, having held at one time or another the following positions: engineer, assistant supervisor in charge of steel mill control, general supervisor in charge of engineering, and assistant in charge of production engineering.

Author of numerous articles on electrical engineering, Mr. Harwood recently completed a textbook on electrical motor controls. He also has been responsible for a number of inventions in this field.

Full-Vision Beverage Vender Is Latest Pelco Product

BLOOMINGTON, Ill.—A full-vision automatic beverage vending machine which dispenses from either side has been placed on the market by Portable Elevator Mfg. Co. under the trade-name "Hava-Drink."

Both sides of the new unit have large glass doors, making every bottle visible, and a thermometer in the center of the drum shows how cold the bottles are.

Circular bottle carrier and cooler is used, a downward pull of the coin lever moving the drum one notch and dropping a bottle into the delivery chute. Drum is claimed to roll easily whether full or partly full.

Each side holds 88 twelve-ounce bottles, or 98 seven-ounce bottles, at a time. The drums operate separately, and two different flavors can be dispensed. Thirty bottles are carried on the outside delivery rack of the cooler section, with 56 bottles in reserve in the four center sections.

Refrigeration is of the dry-storage type, and high cooling speed is claimed. It is said that only 18 minutes is required to bring a case of bottles down to 33°. Exterior of the unit is of steel, welded into one piece, and finish is of baked enamel. Hardware is chrome, and base has heavy-duty casters for mobility. Insulation is 3 inches on bottom, 2½ inches on sides and top.

Bastian-Blessing Sales Contest Winners Fly To Factory

CHICAGO—In a big chartered TWA "Skyliner," 16 Bastian-Blessing Co. salesmen from New York City and Philadelphia, winners in a sales contest, recently were flown from Newark, N. J. to the airport at Muskegon, Mich., nearest landing field to the company's factory at Grand Haven, Mich.

After a thorough inspection of this plant, where they saw Bastian-Blessing equipment in the various stages of construction, the salesmen were flown to Chicago for a tour of the Bastian-Blessing plant there.

Discussion of sales problems and policies with department heads at the company's main office climaxed the business end of the program, and the men were treated to a dinner before boarding the plane again for Newark.

The visiting salesmen adopted as their slogan a toast given to Charles E. Knight, Bastian-Blessing sales manager—"A fountain a night for Charles E. Knight."

Because of the time saved through flying, the men were away from their territories only two days.



WATER COOLED HIGHSIDES for PEAK PERFORMANCE

Your problems in the field, and the kind of service you want to give your customers, get the first consideration in the designing and careful building of PAR Equipment. . . . You can rely on these sturdy units for peak performance and long and satisfactory service.

The PAR water-cooled condensing unit shown above is made in eight sizes, 1/3 H.P. to 5 H.P., for "Freon-12" or methyl chloride. Three optional speeds, for low, standard and high temperatures.

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free Catalog**

ON DISPLAY AT YOUR NEAREST JOBBER



Akron, Ohio	Davenport, Iowa	Milwaukee, Wisconsin	San Francisco, California
Percy G. Hanson	Republic Electric Co.	Refrigeration Specialty Co.	California Refrigerator Co.
Albany, New York	Dayton, Ohio	Minneapolis, Minnesota	Seattle, Washington
Melchior, Armstrong,	W. H. Kiefaber Co.	Refrigeration & Industrial Supply Co.	Refrigerative Supply, Inc.
Dessau Co.	Denver, Colorado	Harris Fixture Co.	Shreveport, Louisiana
Atlanta, Georgia	Refrigeration Parts & Supply Co.	Montgomery, Alabama	Interstate Electric Co.
Bowen Refrigeration Supplies, Inc.	S. C. Young Supply Co.	Teague Hardware Co.	Sioux City, Iowa
Baltimore, Maryland	Des Moines, Iowa	The Starr Co.	Dennis Refrig. Supply Co.
Melchior, Armstrong.	Dennis Refrig. Supply Co.	Newark, New Jersey	South Bend, Indiana
Dessau Co.	Flint, Michigan	Melchior, Armstrong.	F. H. Langenkamp, Inc.
Birmingham, Alabama	Shand Radio Specialties	Dessau Co.	Spokane, Washington
Refrigeration Supplies Distributor	Pt. Worth, Texas	New York City, New York	Refrigeration Parts Sup. Co.
Boston, Massachusetts	McKinley Refrig. Supply Co.	Melchior, Armstrong.	Springfield, Illinois
Melchior, Armstrong.	Greensboro, North Carolina	Dessau Co.	Springfield Refrigeration Supply Co.
Dessau Co.	Home Appliance Service Co.	Norfolk, Virginia	Springfield, Massachusetts
Brooklyn, New York	Harrisburg, Pennsylvania	Oklahoma City, Oklahoma	Melchior, Armstrong.
Melchior, Armstrong.	Melchior, Armstrong.	Mideka Supply Co.	Dessau Co.
Dessau Co.	Dessau Co.	Omaha, Nebraska	Tampa, Florida
Buffalo, New York	Houston, Texas	Interstate Machinery & Supply Co.	Bowen Refrigeration Supplies, Inc.
Melchior, Armstrong.	D. C. Lingo Co.	Peoria, Illinois	Toledo, Ohio
Dessau Co.	Indianapolis, Indiana	R. E. Thompson Co.	Heat & Power Engineering Co.
Cedar Rapids, Iowa	F. H. Langenkamp, Inc.	Philadelphia, Pennsylvania	Tulsa, Oklahoma
Dennis Refrig. Supply Co.	Jacksonville, Florida	Melchior, Armstrong.	Machine Tool & Supply Co.
Charlottesville, North Carolina	The Jamita Co.	Dessau Co.	Washington, D. C.
Henry V. Dick & Co.	Kansas City, Missouri	Pittsburgh, Pennsylvania	Melchior, Armstrong.
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Pegler Machinery Co.	Lexington, Kentucky	Dessau Co.	Winterbottom Supply Co.
Chicago, Illinois	United Service Company	Phoenix, Arizona	Wichita Falls, Texas
H. W. Blythe Co.	Long Beach, California	Refrigeration Supply Distributors	United Electric Service Co.
Cincinnati, Ohio	Refrigeration Supplies	Pittsburgh, Pennsylvania	Toronto, Ontario, Canada
Markel Brothers Co.	Distributors	Melchior, Armstrong.	Railway & Engineering Specialties, Ltd.
Cleveland, Ohio	Frank Gillett Co.	Dessau Co.	Montreal, Quebec, Canada
Debes & Co.	Refrigeration Supply Dist.	Portland, Oregon	Railway & Engineering Specialties, Ltd.
Columbia, South Carolina	Louisville, Kentucky	Baleigh, North Carolina	Winnipeg, Manitoba, Canada
Henry V. Dick & Co.	S. W. H. Supply Co.	Henry V. Dick & Co.	Railway & Engineering Specialties, Ltd.
Columbus, Ohio	Macon, Georgia	Lowe Electric Co.	Hinshaw Supply Co.
Refrigeration Electric Supply Co.	Lowe Electric Co.	Madison, Wisconsin	United Refrigerator Supply Co.
Dallas, Texas	Memphis, Tennessee	Memphis, Tennessee	Sacramento, California
The Electromotive Corp.	United Refrigerator Supply Co.	United Refrigerator Supply Co.	Hinshaw Supply Co.

EXPORT DEPARTMENT—Melchior, Armstrong, Dessau Co.—New York City, New York

MODERN EQUIPMENT CORPORATION
DEFIANCE, OHIO U.S.A.

Locker Storages

Garage Transformed Into Cold Storage Plant By Locker-Minded Business Man

Layer Upon Layer of Insulation and Several Units of Frigidaire Cooling Equipment Used In Multnomah, Ore. Plant

MULTNOMAH, Ore.—What once was an old garage here is now a combination food market and locker storage plant, thanks to the efforts of John D. Trullinger, vice president of Portland Seed Co., Portland, Ore., who also owns locker plants in Portland and Yamhill, Ore.

Mr. Trullinger rents out the grocery store and meat market space, and leaves the locker plant in the hands of W. R. Tattersall, who runs the market.

The cold storage portion of the setup consists of an ante room, a quick-freeze room, a meat storage room, and a locker room equipped with 425 sheet-metal lockers.

All refrigeration equipment in the plant was supplied by Frigidaire, through Sunset Electric Co., Frigidaire dealer in Portland. Raymond Gill, Frigidaire engineer with head-

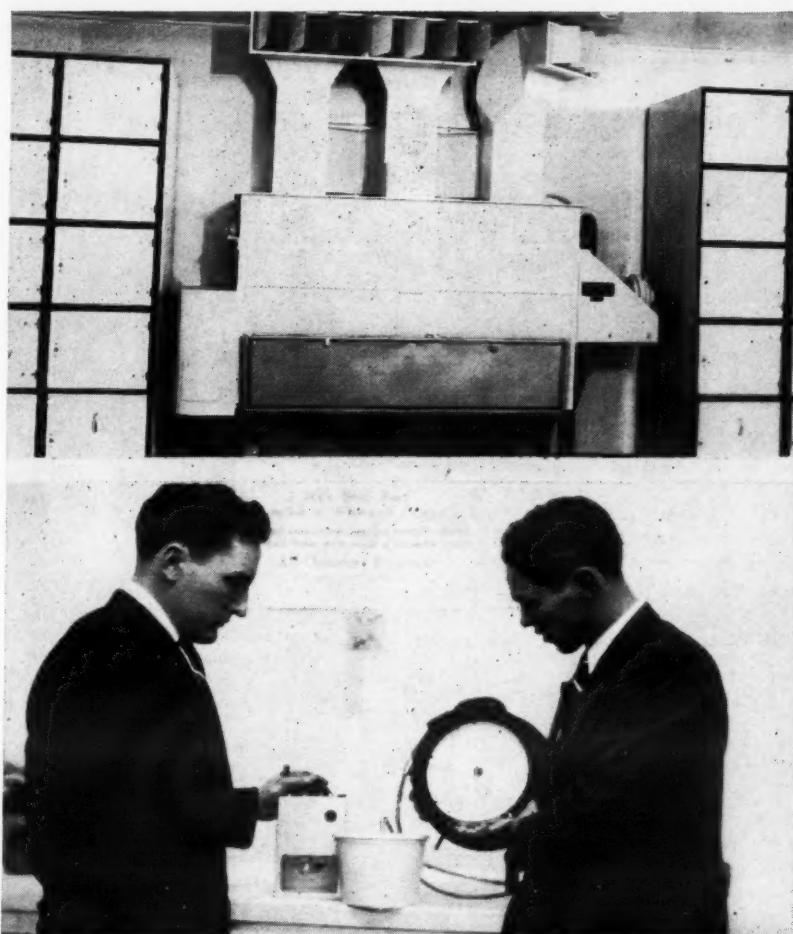
quarters at Sunset Electric, planned the equipment layout; the room layout was designed by Floyd N. Cocklin of the Sunset organization.

First problem to be confronted was the adaptation of the building itself. Considerable insulation had to be provided, as the one-story brick and concrete structure is exposed to direct sunlight most of the day, and sunlight temperatures here often rise as high as 120° F. A 24-hour average of 85° F. was used as a working basis.

Floor of the completed plant consists of a layer of 3-inch hollow tile, a layer of 6-inch sheet cork, and a coating of cement which varies from $\frac{1}{2}$ -inch to 3 inches in thickness because of the drainage pitch in the old garage floor. Hot-dipped asphalt was brushed on between layers.

Inside the outer walls and roof is

The 'Who' & the 'What' of Another Locker Installation



Air distribution in the locker room of John D. Trullinger's locker plant at Multnomah, Ore. is handled by this model 132 R Frigidaire blower. Powered by a specially designed low-temperature motor, this blower operates at 1,750 r.p.m. At either side of the blower may be seen some tiers of the 425 "Sanilok" sheet metal lockers with which the room is equipped.

Mr. Trullinger, owner of the plant, and Floyd N. Cocklin of Sunset Electric Co., Frigidaire dealership in Portland, Ore., which supplied the refrigerating equipment, prepare a test package for the plant's plate freezer. In the test, this waxed carton containing 5 lbs. of hamburger was frozen overnight, its internal temperature dropping from 32 to 26° F. (meat is completely frozen at 27° F.) in an hour and a half.

a 3-inch air space, then a layer of lumber, two layers of hot-pitched waterproofed 15-pound felt paper, a layer of 6-inch tongue-and-grooved lumber, 10 inches of Palco wool, a layer of 6-inch second-grade siding, and finally a resin-pressed veneer which is especially waterproof. This is painted white to harmonize with the lockers.

There is no cooler in the small ante-room leading from the store to the locker room. The absence of any cooler reduces the amount of frost and freezing strain on the inner door.

When the outer door is opened, the humidity content of the air moving from the store at 60 to 85° F. into the air-lock at 40 to 60° F. is raised considerably, and when the inner door is opened and the temperature drops to 0 or 10° F., the humidity jumps well over 100% and moisture condenses before frost can form.

QUICK-FREEZING SETUP

For the quick-freezing process the plate method was employed, the 6 x 9 x 8-foot freezing room being equipped with 10 Dole vacuum plates. Efficiency of these plates was increased by flattening the coils to an oval shape, thus allowing the refrigerant ("Freon") to get closer to a larger area of the plate surface.

Rapidity of freezing is one advantage of this type of setup.

The plate method also shows a higher refrigerative capacity per horsepower because of a higher back-pressure in the machine, the result of the product being laid directly on the coils. This gives a margin of safety between the specified capacity and the actual operating capacity.

In this case the specification was for a freezer capable of freezing 750 pounds of produce in 24 hours on low back-pressure. In actual test, 1,000 lbs. of produce has been frozen in 12 hours to -35° F. The plates themselves were down to -50° F.

The freezer compressor is a two-cylinder Frigidaire F-4F with a 1 hp. three-phase Delco motor. It is operated manually, being run only when the plates are loaded. Defrosting is accomplished by brushing or by simply opening the door to the locker room, thus avoiding all shut-downs and permitting faster freezing.

The standard Frigidaire market setup, an F-3F compressor with a $\frac{1}{4}$ -hp. motor and a C770 blower, was used in the 9 x 9 x 17½-foot meat storage room. This system operates on a pressure control set to cut in at 33 and out at 16. Humidity is maintained at 90% by balancing the coil and compressor load. The meat storage compressor as well as the one for the quick-freeze room and the locker room, uses "Freon."

LOCKER ROOM EQUIPMENT

The compressor for the 46 x 26 x 9-foot locker room is a model F-6J with a 3-hp. three-phase Delco motor. It operates on a thermostat set to cut in at 3° F. and cut out at -3° F.

Cold distribution is by a blower,

model 132 R, with a 1½-hp. motor operating at 1,750 r.p.m. This is a specially designed low temperature, ball-bearing motor, wired and set to cycle with the compressor or to operate individually while defrosting.

The whole mechanism is placed against the wall of the compressor room in order to shorten the length of baffles and ducts used to introduce warm air over the coil for defrosting.

GRILLELESS LOCKERS

The 425 "Sanilok" lockers are of sheet metal, without any grillework. Pre-freezing of the stored products makes grillework unnecessary. Each unit has an individual, built-in lock. The bottom lockers slide out and are loaded from the top, while the rest open like doors and are loaded from the front.

For a payment of 1½ cents per pound the locker customer may have his meat cut, wrapped, marked (with locker number and kind of meat), pre-cooled, quick frozen, and placed in his locker. It must pass inspection for adaptability and condition before the management okays it for storage.

Mr. Trullinger's Portland plant, largest of his locker enterprises, was opened early this year. It contains 750 Sanilock metal lockers of 6 and 8-cu. ft. capacity. Carrier refrigeration equipment was used.

The locker room is cooled by a type Q cold diffuser and is kept at 10° F. The pre-cooling room, kept at 34 to 36° F., and the quick-freeze room, kept at -15°, contain type K cold diffusers. Both operate from one TF4 compressor with a 3-hp. motor.

The two compressors are Carrier. The larger, model 7F6 with four cylinders, runs from a 7½-hp. motor, but will take a 10-hp. motor when

expansion makes it necessary. It refrigerates the diffusers in the locker room and the quick-freeze room. The smaller, model 7F3 with two cylinders, has a 1½-hp. motor, and will take a 2-hp. motor when needed. It refrigerates the air-lock and the pre-cooling room.

For convenience in defrosting, the diffuser in the locker room is placed against the wall next to the engine room. Two doors, one high and one low, are so placed that warm air from the engine room may be circulated through the coils of the diffuser.

An evaporative condenser is used for both machines. This is a new development by Carrier which employs the principle of evaporation rather than heat absorption. An atomized spray keeps the condenser coils wet, and a fan promotes evaporation.

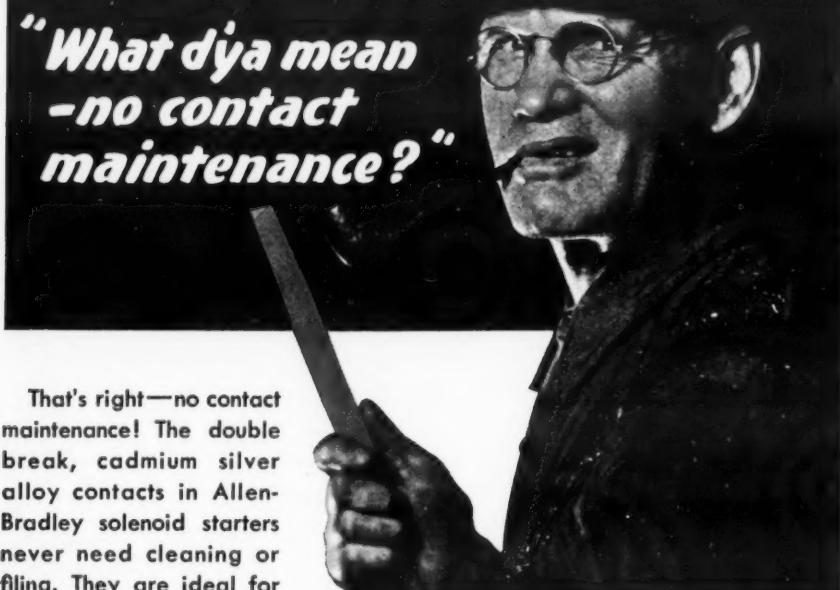
This type condenser is said to save up to 90% on water, and also to save on power consumption thereby increasing efficiency of the whole system and almost eliminating the water disposal problem.

This plant was designed and installed by M. A. Postlewaite, Al Freeman, and G. C. Shapley of Western Engineering Co., Portland.

YAMHILL PLANT

At the Yamhill plant, which has been in operation about three years, there are 300 wooden lockers from 7 to 14 cu. ft. in capacity, constructed by local labor. These are cooled by a Q2 Carrier cold diffuser. The chill room is cooled by a K5 diffuser. Both operate from one TF4 compressor with a 3-hp. motor.

The quick freezer uses Dole vacuum plates which are refrigerated by a Carrier 7F3 compressor. Mr. Postlewaite of Western Engineering Co. also laid out this plant.



That's right—no contact maintenance! The double break, cadmium silver alloy contacts in Allen-Bradley solenoid starters never need cleaning or filing. They are ideal for air conditioning service.

Solenoid Relays—Bulletin 700 solenoid relays are used with oil burners, refrigerators, stokers, and other similar applications requiring small but rugged and reliable remote control switches. Their simple solenoid construction and double break, silver alloy contacts assure long life without maintenance or attention. Available in over 300 combinations from 1 to 8 poles.



Single Phase Motor Starters

Bulletin 709SP solenoid starters are used for connecting self-starting single-phase motors directly across-the-line. Simple and trouble-free. Resisto-therm relay provides accurate and reliable overload protection. The low drop-out voltage prevents unnecessary shutdowns, even when line voltage conditions are bad:



Polyphase Motor Starters

Bulletin 709 solenoid starters are used for across-the-line starting of squirrel-cage motors. These starters are unusually simple in construction. They have no bearings, pins, flexible jumpers, or complicated mechanisms to cause trouble. White interiors, ample wiring space, and front of panel wiring make installation easy.



Allen-Bradley Company
1313 S. First Street, Milwaukee, Wisconsin

SEND FOR "THE STORY OF THE SOLENOID STARTER"

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL



LOCK UP YOUR DINOSAURS

Sulphur Dioxide is 50 million Experience-Years old!

Up and down the land some 15 million household refrigerators have helped families to better living. Well over 60 per cent of these refrigerators have employed sulphur dioxide. A little figuring will reveal that the cumulative operating time for SO₂ units far exceeds 50 million years! Remembering the performance, the efficiency, the ease of servicing, the safety, the reliability—can anyone doubt that sulphur dioxide is the best refrigerant for household units yet developed?

ANSUL CHEMICAL COMPANY
MARINETTE, WISCONSIN

THE JOBBER WHO WORKS FOR ANSUL WORKS FOR YOU



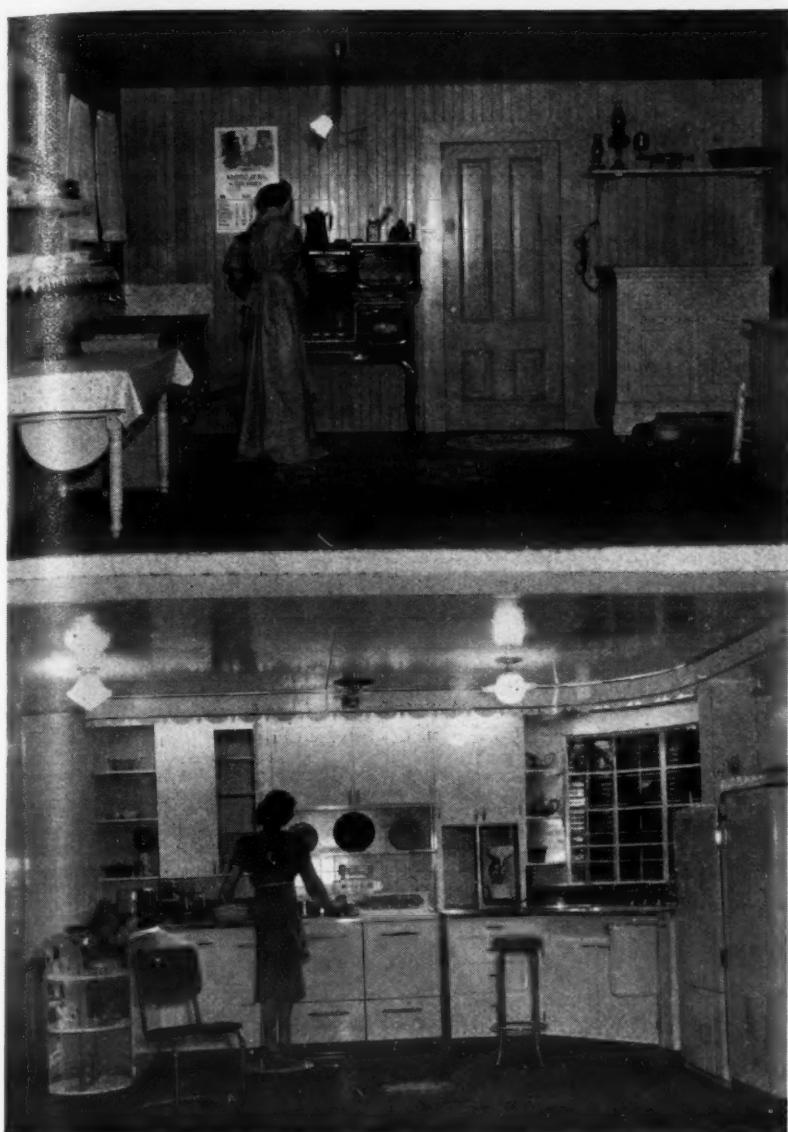
Funny
Mrs. Br...
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Profitable Sales Ideas

'Dummies' Tell Live Kitchen Story



Advances made in kitchen equipment during the last 30 years were graphically portrayed in these contrasting displays at the recent Southern California Home Show in Los Angeles. Complete even to mannequins dressed in the costumes of the period, the displays, on opposite sides of the show's center aisle, were part of an exhibit contrasting "ancient and modern" styles throughout the home.

Sales Honesty Proves Best Policy, Says Woman Crew Leader

By Robert M. Price

BIRMINGHAM, Ala.—The best trick in the appliance trade is to tell "the plain truth" about the product and what it will do. Sales honesty has proved the best policy for Mrs. Mary D. Brightman, sales supervisor for E. E. Forbes Co., Frigidaire dealer here, and through her years in the appliance business she has gained a philosophy all her own on how to handle sales—and men.

Unvarnished facts are pretty foreign to many appliance salesmen, because they believe that everyone likes to absorb a little "hooley." Not the canny Mrs. Brightman. "When you tell people the truth they are so startled that they are won over almost at once," she reasons. "Just tell it to them in a dramatic way, and they will lap it up with biscuits."

LEARNED FROM 'LIAR'

Funny thing about this candor of Mrs. Brightman, for the man who taught her the first rules of selling she described as "the most graceful in the world." Woman-like she chose the opposite technique when she took up the task of selling on her own.

Women could always handle men, but to handle the chesty male in a business and keep him smiling is another thing. "I believe the sales supervisor has a definite responsibility for all sales," Mrs. Brightman said, "and the best way I know to discharge that responsibility is to keep a good feeling among the salesmen. Many times a man resents a woman telling him what to do in business, so I never say 'I know'; always 'I think.'"

SELLING TO MEN

And that system works on men customers as well as the salesmen. To keep peace in her appliance family, she always holds to the rule "never butt in" when a salesman is giving a customer his story. But the

Economist's 'Good Turn' Schools Aid Sales

WEBSTER GROVES, Mo.—By being a "good scout" herself and by doing a "good turn" in helping St. Louis county Girl Scouts obtain their cooking merit badge through cooking schools held in the company's kitchen here, Miss Prudence Price, director of home economics for Union Electric Co., St. Louis utility, is cultivating present as well as future appliance sales.

Since the first of the year, approximately 250 scouts have their cooking badge through Miss Price's efforts. During the course the girls not only learn the technique of making a range behave, but also learn how to plan, prepare, and serve a complete and well balanced meal.

At the end of each series of classes, the Scouts play hostess to their mothers and their leader, planning and serving a soup-to-nuts dinner.

'Surrealist' Windows Pay Off In Sales

ST. LOUIS—A touch of "surrealism" in its window displays . . . with particular emphasis on the humorous angle . . . stopped an average of 800 persons a day on a busy St. Louis street and boomed electric range sales for Scruggs, Vandervoort & Barney, department store.

Conceived by C. W. Amos, manager of the store's electrical appliance department, the window presentations made use of the new form of "art" which turns monkey wrenches, teacups, and hanks of hair into rather bizarre "human" figures, tieing into the spring range merchandising theme.

Standout window of the series depicted a surrealistic scene, with a central figure whose body consisted only of legs, hands, head, and an empty dress, bending over an electric range. Tasting soup from a spoon, the face is set in a ludicrous expression, designed to get a giggle from any onlooker.

Because the neck stopped short of the dress bosom, and the hands apparently had no connection with the rest of the figure, the "woman" loomed up sharply against the pastel background, and was easily discernible, even from across the street.

While the displays were running, the store sent out 50,000 circulars on electrical items, inviting prospects to inspect the surrealistic applications. Sales-pulling power of the "art" and circular combination proved such, says Mr. Amos, that it will be continued.

'See 'Em Early and Sell 'Em Fast' Technique Cuts Down Prospects' 'Shopping' Tendencies

SEDALIA, Mo.—Uncover the prospects first, and sell them fast, before they get muddled by the rival claims of your competitors. That is the conviction of Bert Heien, manager of the Caldwell Electric Co. here, and in three months 50 refrigerator sales have been chalked up on this "see 'em early and sell 'em fast" technique.

"All the manufacturers make good boxes now," reasons Mr. Heien. "That's why we find our own prospects from ice-using homes, and sell them our line first." Early morning

They Fight To Keep Out Of The 'No Sale' Club!

ATLANTA—Salesmen as a class are great "joiners," but there's one organization down here that they're all trying their best to keep out of. It's the "Eight-Ball Club," established by appliance salesmen in the Atlanta division of Georgia Power Co.

The idea is not to be a member. The store manager who makes the smallest percentage of his quota each week literally sits behind an "8-Ball" trophy that is placed on his desk. Salesmen who fall short of their weekly quotas wear "8-Ball" pins in their coat lapels.

It's disgraceful to belong to this organization—but you have to be a "seller" to stay out.

ice cards are checked, and many sales come from calls on the husband and wife that same night.

Plan is to get the husband and wife qualified on the sort of refrigerator model they want and can afford, and make an appointment for the downtown salesroom at a time when both can come. This call is always set for the morning after the salesman's call to avoid shopping around and collecting comparative appraisals which only "confuse the prospect."

Most sales are closed during the store demonstration. The credit check has already been made. If customers insist on "looking around," Mr. Heien urges them to do so. "But," he warns, "don't let them high-pressure you. Do your own thinking." It is almost always true, he says, that the prospect does come back and admit that "they sure did try to high-pressure me."

Salesmen are instructed to always go to the front door in making calls. If they are to go through to see the refrigerator, washer, or stove, they have a chance to inspect the radio in passing.

Radios sent into new homes are serviced within the first week to insure satisfaction. Once a month, the salesmen make a call on the radio customer. It is felt that this service ties customer loyalty to the firm. In addition, 10 refrigerator and range sales have been made to these radio users, showing that keeping in touch is worth the time and effort.

QUESTION:

"What makes—or brands—of electric motors in your opinion would make it easier for you to sell appliances?"*

"General Electric"

said 84 per cent of the dealers answering

HERE'S evidence from the sales floor that G-E motors will help YOU sell. In an impartial survey among dealers, 84 per cent of those answering named G-E motors in reply to the above question. They found G-E motors to be a help for two reasons, we believe: First, millions of people know from experience that G-E motors are reliable. Second, millions have heard that they are good. This reputation will work equally well in your territory—why not let it help you sell? General Electric, Schenectady, N. Y.

Old Customers Know G-E Motors Are Reliable

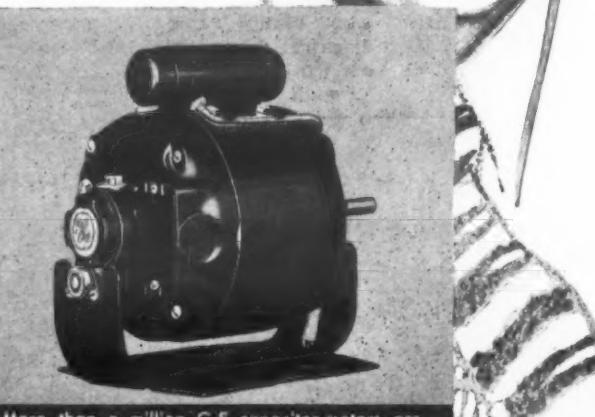
Today G-E motors drive millions of domestic appliances. They've given good service and they have satisfied users. General Electric has continually improved them to meet the ever-growing demand for appliances that will operate longer with less attention.

When these millions of satisfied users buy new appliances, they—naturally—prefer those powered by General Electric. They know from experience that G-E motors are of high quality.

New Customers Have Heard They Are Good

G-E motors help sell new customers. With them it's the reputation that does it—satisfied users pass their experiences along, particularly to prospective appliance buyers.

A first-time buyer accepts G-E motors as being of high quality because he has been told that they are. Moreover, they are a strong indication to him that the appliances so equipped are reliable throughout. Why not let G-E motors help you sell to the newlyweds?



More than a million G-E capacitor-motors are now in use on domestic refrigerators

* This question is one in a questionnaire sent out by a leading publisher to representative electric-appliance dealers and department stores. Results are listed below. Obviously, some dealers named more than one manufacturer.

General Electric . . . 84%

Manufacturer A . . . 66%

Manufacturer B . . . 26%

Manufacturer C . . . 12%

GENERAL ELECTRIC

670-284

PERSONALITIES

By George F. Taubeneck

No Matter What You May Think of Him, He's A Personality

Interviewing the President of the United States, as your correspondent did last week, is always an event, even if one has been lambasting hell out of him and his policies for six years.

After all, he is one of the leading Personalities of our era, no matter whether you think he is the Savior of the Downtrodden and the Salvation of the World, or whether you believe he is That Crackpot in the White House and The Most Dangerous ***\$&&!!! Alive.

One of the tests of a Personality is that feeling toward him is not lukewarm—he is either detested or loved. Roosevelt fits that test hands down.

All this philosophizing is designed hopefully to furnish a weak alibi for the manner in which your correspondent entered the White House, and for the nature of the impressions which are hereinafter set down.

Head First—and On the Nose!

Just as Phil Redeker or Jack Adams would have predicted—and to their intense delight when they learned about it—your correspondent entered the White House head first.

Those big feet tripped over the first rug, a lovely spread eagle dive ensued, and in we slid on our nose, somewhat to the astonishment of various gentlemen in striped pants, black coats, and spats.

And as if that weren't enough, out flew the precious candid camera. It was immediately confiscated by two secret service men. We got a mild species of revenge, however, by demanding a receipt for it, pending the return from the interview.

Impressions of FDR

"... Detroit, ah yes... air conditioning?... well... it's so good to see you..."

First time I ever went around behind a man's desk before. But you have to do it, to shake hands. He doesn't rise from that chair. Has a good grip to his handshake, and a grand smile.

The one-two-three sequence when he meets you is something to see: (1) the lifted chin; (2) the lifted eyebrows; (3) the outbursting smile—click, click, click.

"... now on our new \$3,888,000,000 bill..."

By golly, there's the chance of a lifetime, and those sos-and-sos took my camera. Darned if his shirt isn't unbuttoned at the navel. Eleanor must be out of town again.

"... won't conflict with private enterprise, because it will do things private enterprise can't, hasn't, or won't try..."

Jeez, lookit the donkeys. Count 'em. Lessee, must be around two dozen miniature donkeys, all different. Well, some people collect miniature elephants. Lots of miniature replicas of ship's dinguses, too, binnacles, compasses, and suchlike. And the Great Seal, in a little box. Papers galore on that littered desk.

"... toll roads... right of eminent domain can't be exercised by corporations... formula worked out by Al Smith and Bob Moses..."

He certainly talks well. Smooth flow of language. But that famous voice isn't so mesmerizing at close range. Vacuum tubes must do a lot for it. But what an extemporaneous speaker! Has a great fund of facts and ideas, well marshalled, winningly expressed. A salesman, gentlemen, a salesman!

"... PWA is popular with Congressmen... they like that 45% handout... in the long run it isn't sound... should be self-liquidating..."

Hey! Did I hear aright? The handout isn't a sound policy? Somebody must have broken through the Inner Circle of advisers.

"... perfectly natural to charge all the traffic will bear... human nature..."

Well, when this fella gets through down here—if he ever does—he could have quite a career in Hollywood as a character actor. What an expressive face, and how he uses it! It's deeply lined. Crisscrossed. Can't tell whether it's from suffering, or worry, or just the mobile uses to which he puts it.

"Now if you or I were Hitler at this point, we'd go to Senor X and say, 'frightfully sorry, old fellow, but...' "

Fascinating to watch his movements. Apparently artless, probably not. Scratches back of neck, twists head, thrusts jaw, shifts shoulders like a fighter, lights cigarette, jams it into holder, and lets it burn down to end so that he has difficulty getting butt out of holder. Eyebrows working continually.

"... so glad... must come again... regards..."

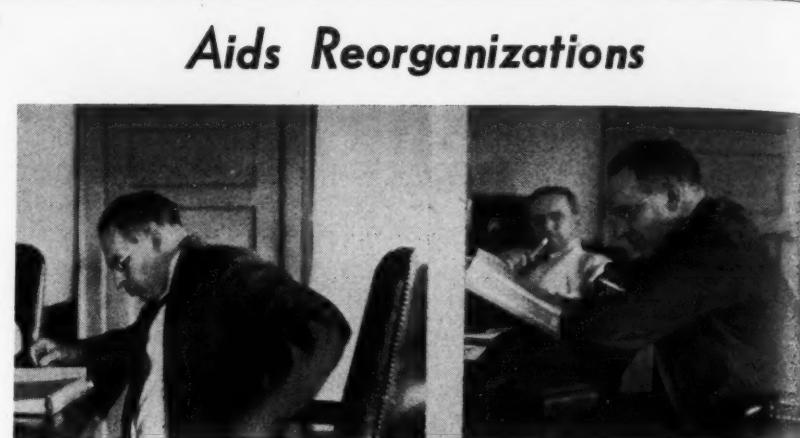
Hmm, lovely office, all in white. With its Currier & Ives prints, its outlook on the White House grounds, and its Colonial grace, it's as pleasant in aspect as one of those interiors you see in a hearth-and-home magazine. But no air conditioning. Reception rooms are air conditioned, but not FDR's office. Should have asked him about that. Well, mebbe another time. . . .

Undersecretary Noble

In the April 19 issue of the NEWS there was a front-page item to the effect that Edward J. Noble was slated to be the next Secretary of Commerce, provided Harry Hopkins did not recover his health, and that Congress would be asked to create the post of Undersecretary of Commerce for Noble pending the resignation of Hopkins several months later.

"If Noble succeeds in enlisting the cooperation of business," the article stated, "he will get the job when (and if) Hopkins leaves."

"But whether or not Hopkins re-



Samuel Clark, head of the Securities Exchange Commission's new reorganization division, reports that his division has already been a party in 82 reorganization proceedings in federal courts. The division has nine offices, 52 attorneys, and 26 financial men. Chapter 10 of the Chandler Act gives the SEC the right to become a party at interest in bankruptcy procedures under famed 77B. This division analyzes the situation with emphasis on the position of security holders, prepares an advisory report for the study of the court, but does not submit a bill for its work. The taxpayer, as usual, is soaked for this service.

covers sufficiently to return, Noble will be the acting secretary from now until Hopkins and his doctors have definitely decided on his proper course."

Today Mr. Noble is the Undersecretary of Commerce, and is the active head of the department, in much the same fashion that Charles Edison manages the Navy Department for Secretary Swanson, who is also ill health.

The Invisible Mr. Hopkins

As for Hopkins' health, it is said to be considerably improved since the April 19 article appeared. He is also heard from occasionally, through a statement to the press or a radio talk.

But try and find him. As far as members of his department is concerned, Hopkins is the Invisible Man. And, after experiencing a succession of broken appointments and failures-to-show-up with Hopkins, the writer is almost ready to deem him a myth.

Apparently he is remaining the titular head of the department for publicity value, and his duties would appear to be largely political.

However, the Hopkins-for-President movement, which was bullish five or six months ago, has appar-

ently evaporated. His ill health removes him as a possibility. * * *

Rugged Individual

Noble, who retired from the active management of the Life Savers candy business (which he started in a basement) to devote himself to public service, looks like a first-class model for a portrait of the Rugged Individualist.

Rough-hewn and homespun, he seems anything but a politician. His associates in the department say he is a good organizer, that he is receptive to new ideas, and that he is ambitious to put the Department of Commerce in a position to do as much for business men as the Department of Agriculture has done for farmers.

He has inherited a crew of division heads who have been on their jobs for a long time—many of them appointed by Herbert Hoover, who as Secretary of Commerce expanded the department into many new fields.

Anyway, if you have a problem or an idea which you think might merit attention by the Department of Commerce, he is easily accessible, and is most anxious to lift the department from its present prostrate condition of innocuous desuetude.

Department of Commerce Men Confer on 'Business Extension Station' Idea



(1) Dr. Willard Thorp opens a conference of division heads of the Department of Commerce. He states that the Department of Commerce is now doing a pioneering job on the question of whether or not a non-

regulatory body can be helpful to business by doing an objective job of fact-finding. Industries are now coming to the Department, he declares, to get advice on how to deal with other departments of the government.

(2 & 3) Undersecretary of Commerce Edward J. Noble, the man who really runs the department, discusses his proposed new program of working with state universities through "business extension stations,"

somewhat similar to the Department of Agriculture's agricultural experiment stations. (4 & 5) The two men in the foreground of this Department of Commerce conference are John Payne, head of the electrical equip-

ment division, and Dr. Rauls, acting head of the Bureau of Foreign and Domestic Commerce. Mr. Payne, who is resting overworked eyes in the end picture, is well known throughout the electrical industry.

Senator Pat Harrison Feels Pretty Good About New Spirit of Independence in Congress



Senator Pat Harrison of Mississippi, a Democrat but hardly a New Dealer, expresses himself as being highly

satisfied with the recent tax legislation which removes some of the burdens from business. The Treasury

Department, especially Secretary Morgenthau and Undersecretary Hanes, did most of the work on this legisla-

tion, according to Senator Harrison, and deserve much of the credit for seeing the job through. Senator

Harrison feels pretty good about the manner in which the present Congress has taken the bit in its teeth.

Dayton Dealers Find Many Kinds of Benefits In Cooperative Activity

But 'Overflow of Dealers' Problem Is Yet Unsolved

By Phil B. Redeker and Robert M. Price

Dayton

Generally speaking, Dayton, Ohio has been a "good" electric refrigerator and major appliance town. Sales have held up well from year to year, most of the veteran dealers have been able to "stick it out" in the business, and in the Electric League of Dayton the dealers have an organization which apparently is capable of accomplishing things.

But in Dayton, as elsewhere, there are complaints that the flooding of the field with dealers has greatly reduced the chances for profit for all dealers—both good and bad.

One old-time dealer in Dayton says that such a policy is perhaps the chief reason why veteran dealers aren't inclined to pioneer new products, such as air conditioning, for the manufacturer.

"Can the manufacturer expect a dealer to give him his loyalty and to pioneer new products when he deliberately cuts into the business on established products which the dealer pioneered for him?" the Dayton veteran asked.

"Can the manufacturer expect the older and larger dealer to advertise in as big a manner now, with a half dozen or more other dealers handling the line in the same territory, as he did when the older dealer was the only one in the territory handling the line?"

And this particular dealer pulled from his files tearsheets of newspaper advertising that he used in the old days, and compared them with the advertising he is using now, and the present-day copy was dwarfed by his advertising of previous years.

"Why should I take a half page and advertise a line that five or six other dealers, some of them only a block or so away, are also selling?" he queried.

League Establishes Advertising Rules

A brighter side of the appliance retailing picture in Dayton is the work of the Electric League. Late this spring the league celebrated a "Dayton Automatic Refrigeration Week" for which they devised a "foolproof" method of getting the public to inspect appliances on their showroom floors.

The method used was a radically different kind of prize contest, in which to win one of the merchandise prizes Dayton householders had to match the number on a card they received with the corresponding number on another card attached to an appliance exhibited in the showroom of the dealer.

The prize winning numbers were spread around among the participating dealers, practically assuring the dealers of a fine "walk-in" attendance by prospects during the week. The cards bearing the numbers were sent out with an 8-page, tabloid-size broadside which carried ballyhoo about the advantages of modern automatic refrigeration, a list of the prizes being offered, advertisements of the various makes, and addresses of the dealerships.

MUST JOIN TO SHARE

By limiting the participation in such promotional activities the league holds a powerful weapon to get dealers to join the league. Several non-members made last-minute efforts this spring to join up before the "Refrigeration Week" activity started.

The league has also worked with the Dayton Better Business Bureau to devise a set of rules to eliminate unfair and misleading advertising on appliance merchandise, with the result that the following rules have been added to the code of standards for advertising as enforced by the bureau:

"c. All merchandise is to be accurately described by stating in a conspicuous manner that the merchandise is 'used,' 'rebuilt,' 'reconditioned,' 'factory rejects,' 'seconds,' etc. Merchandise not described to the contrary refers to new merchandise of a first quality."

"d. Merchandise which has been superseded by another model shall be clearly described with the year of manufacture, no matter whether the merchandise is used or new."

"Example: '1937 floor demonstrator model.'

"e. Where comparative prices are used in conjunction with merchandise that is other than new, then in the same size type as the comparative price itself shall appear words 'used,' 'rebuilt,' 'demonstrator,' etc."

"f. Where merchandise offered is older than two years there shall be no comparative prices used. For example, where 1939 models are on the market there shall be no comparative prices used on 1937 models or older."

"g. That no reference be made to famous makes or manufacture in advertising copy unless the merchandise actually featured is a make that is nationally advertised or is actually nationally known trademarked merchandise."

'What To Do With Big Trade-Ins?'

If other members of the dealer organization are faring as well as their president, Harold Rice of the Good Housekeeping Shop, business must be generally better in Dayton.

"Much better than last spring," was Mr. Rice's comment on his 1939 sales volume. Mr. Rice is one man who seems to have found some use for the "stripped six" box put out by the manufacturers, as he advertises this box to draw prospects, and then sells them "up."

One of his big problems this year, Mr. Rice averred, is how to dispose of the big mechanical refrigerators which he has taken on trade-in deals.

DOUBLE-DOOR OLDIES

As veterans of the refrigeration business know, the boxes made from 8 to 12 years ago (and which are the ones most apt to be traded today) were often huge double-door models, and very few were under 8-cu. ft. capacity.

These units are often in excellent shape, both as respects the mechanism and the exterior finish, but they are often too big to suit the taste of

many present-day householders. Mr. Rice thinks that there might be a market for these used models among the factory laborers, where large families are often the rule, but hasn't figured out just yet how best to contact this group as a market.

All-Industry Salesmen Training Need Is Seen

A pioneer in electrical appliance retailing in Dayton is R. R. Hollister, a keen student of every phase of the business who has built his business to the point where he now has one of the finest appliance stores in the country. He handles the General Electric line of major appliances.

One thing that worries Mr. Hollister in these times is the difficulty he has in getting "good" appliance salesmen.

"It's easy enough to get a flock of applicants, and even to cull out some very fine men—men with good business backgrounds, a nice appearance, and all the apparent attributes that a good salesman should have."

"But turning them into producers in the appliance business is something else. I've seen fine men work their heads off for months and not turn up an order."

"I think the industry has lost a lot of men in the last year or two who had learned the 'knack' of 'appliance selling' and that they haven't been replaced. Maybe what the industry needs right now is a big sales training program."

SMALL FORCE NOW

As a consequence of this situation Mr. Hollister now employs a relatively small sales force, although his former practice had been to employ a rather large sales force. He says there are some advantages to the smaller force, the men are likely to average more money each, and thus feel much happier about their job.

Mr. Hollister has given pretty careful study to the trade-in problem, and as a consequence he has taken it in his stride.

In fact, his trade-ins apparently should show a nice profit, judging by the price tags on many of the used boxes marked "sold" on his showroom floor.

The Dayton retailer uses a "blue book" of market values in his "trading" with prospects who already own a mechanical box.

"It's something to start with, and gives our values a semi-authentic touch," he declares.

Mr. Hollister looked around until he got someone who could do a real job of re-finishing cabinets, and as a

consequence many of the used models which he sells look brand new—not like a repainted golf ball. He keeps his used merchandise in a separate wing of his store, and advertises them separately—whenever they begin to load up on him. So far he's not had much trouble getting rid of them.

"It's all right to figure that your profit is the traded-in model," Mr. Hollister advises, "but set that as your price on the box and stick to it."

Although he has yet to make his second sale of the item, the dishwasher is a great pet of Mr. Hollister's. He likes it as an appliance to sell, because it has the features that lend it to specialty selling, and there's a good per-unit profit.

However, he feels that the market for the dishwasher at the present is quite limited, but his contention is that most of the sales effort on dishwashers has been misdirected.

DISHWASHER SAVINGS

The dishwasher, he says, has a savings story for a particular group, and it is to that group that sales effort should be aimed, he asserts. The group he describes are those families that have one servant, whose duties are chiefly the preparation of meals and the "cleaning up" of the dishes.

"Some of the people in these groups have found it necessary to economize, but the wife, being used to the luxury of a servant, is often reluctant to be without one," he explains. "But if she could be shown that the dishwasher would relieve her of the main burden of the work, and that the weekly payments on it would be less than half of what she pays the servant, I think both she and her husband would be much interested."

Another problem with dishwashers, says Mr. Hollister, is that salesmen are afraid of it, because the sales resistance is high, and because it must be sold to those in high-income brackets. But it is a real opportunity for salesmen with "guts," he thinks.

Morgan Has Reputation For Doing the 'Unusual'

Although we didn't get to see him, we heard plenty about Cliff Morgan, Crosley dealer, who apparently does business on a pretty broad scale.

Mr. Morgan specializes in special promotions, such as (so we were told) getting out his own four-page "newspaper" to tell about his merchandise, particularly about his "specials." Perhaps we can tell more about Mr. Morgan's activities at some later date.

Boston Home Economist Directs Hawaiian School

HONOLULU, Hawaii — Honolulu homemakers heard about all the latest electric housekeeping ideas at the annual cooking school sponsored here last month by the Honolulu Star-Bulletin and the Hawaiian Electric Co.

Women of many races and colors jammed the Princess theater on the show's three days to see and hear a presentation of new electric kitchen ideas by Miss Ilah Manchester of Hotpoint and Mrs. Miriam Jackson Emery of the Hawaiian Electric Co.

Miss Manchester, who is Hotpoint's Boston district home economist, traveled all the way from New England especially to conduct the school.

An all-electric kitchen was set up on the Princess theater stage.

This little coupon brings you this Year's BIGGEST NEWS in Belting — Free!

"AMERICA'S BELT BIBLE"

1939 Edition of the GILMER Belt Catalog

Hollywood would say this edition is "Stupendous!" We call it the most complete f.h.p. belt catalog ever to come off a press! 188 jam-packed, time-saving pages listing refrigerator belts for over 5700 models, 149 makes by lengths, cross-sections, and manufacturers' part numbers. Also includes Oil Burners, Stokers, Air-Conditioners, Washing Machines, etc. Handy pocket size . . . clearly, concisely arranged and indexed.

Get GILMER Belts!

Tough . . . Minimum Stretch . . . Full-Sized . . . "Tailor-made in the grooves" on the world's largest assortment of V-moulds. Built by engineers who specialize in belts. GILMER BELT JOBBERS carry full stocks. You're always sure of quick deliveries . . . everywhere.

L. H. GILMER COMPANY
Tacony, Philadelphia

Fill-out coupon today for your FREE copy of the 1939 GILMER Belt Catalog.

YOUR NAME _____
TITLE _____
FIRM _____
ADDRESS _____



FEATURES:

CORE—A large amount of cooling surface with high percentage of prime to total.

CASING—Made of heavy gauge aluminum, lacquer dipped for further protection. Mounting supports hot-dipped galvanized channel iron.

DRAIN PANS—An insulated double pan is used with outer shell of heavy gauge aluminum and inner shell of corrosion resistant copper.

FAN AND MOTOR—Slow speed motor and overlapping kidney type fan blades assure quiet operation.

HEAT EXCHANGER—Regular equipment on all standard models.

SINCE 1907



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610 N. OAKLEY BLVD. - CHICAGO - ILL.

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How Not To Avoid A 'Black Eye'

HOW often in the last several years have you heard air-conditioning men say, "we must make adequate, soundly engineered installations or the industry will suffer a black eye" whenever discussions about price or complete units took place? This argument has held sway for a long time, and has seemed practically irrefutable.

Today, however, we are running across more and more comments like the following, which is quoted from Elmer C. Adams's syndicated newspaper column:

"Some of these refrigerated theaters are kept so cold that one suspects the managers are going on the theory that we customers are fresh meat, and will spoil."

They Aren't Keen on It In Official Washington

Before the recent meeting of the American Society of Refrigerating Engineers in Hershey, Pa., Charles A. Peters of the U. S. Department of the Interior's division of public building management, declared that the experience of government employees with large central station air conditioning had been unsatisfactory, and described some of the ingenious "home made" devices employees had tried to check the flow of conditioned air through their offices.

The editor can also testify to the general attitude of disappointment and even hostility met with in Washington when discussing air conditioning with government employees and officials.

President Roosevelt Stews In a Hot Office

A program was worked out this year for air conditioning the eight principal government buildings in the capital not now conditioned, but the House of Representatives appropriations committee turned thumbs down on the idea because of "personal observations and experiences in connection with air conditioning."

It is interesting to note also that President Roosevelt has

eschewed air conditioning for his own office, although (or perhaps "because") White House reception rooms are frigid and clammy.

Engineers Know Formulas; Salesmen Know People

These examples are but few of hundreds. In attempting to avoid a "black eye" by insisting on "adequate" installations, the industry has actually received the darkened optic it so feared.

Why? Because the human factor was not sufficiently considered. Air conditioning thus far has been largely in the hands of engineers. The latter, praiseworthy and indispensable though they be, have been accustomed to working with mathematical formulas, with laboratory conditions. They have given the public what they figured it ought to have.

Public Simply Wants Some Relief From Heat & Humidity

Had salesmen been more in the saddle, they would have been much more inclined to give the public what it wants.

And what the public wants, it now develops, is not scientifically controlled temperatures and humidity. Engineers, with their "adequate" and expensive installations, have given people theoretically "ideal" conditions, just as they previously had given factories ideal conditions for the control of industrial processes.

More Recent Installations Provide Smaller Differentials

But, it turns out, people are made uncomfortable by "ideal" indoor conditions when they differ so drastically with outside temperatures and humidities. What the public wants is relief, and this relief is better obtained through a modest differential between outside and inside conditions.

Not all installations, of course, have been designed to establish an inside temperature of 72 to 78° F. plus a 50% relative humidity. Especially in the last couple of years the practice of providing for a differential of 15 to 25° between inside and outside temperatures has become more prevalent.

However, there is now even some room to doubt if such wide differentials are altogether to be desired.

Small 'Inadequate' Units Not To Be Deplored

Thus it is that when manufacturers of room coolers and unit air conditioners begin selling small, low-priced units to all who want them, it becomes more and more difficult to accept the theorem that such manufacturers are giving the air-conditioning industry a "black eye."

Salesmen are finding that there is a demand for units which will afford some relief from heat and humidity. Since such small units do provide some relief—even if engineers declare that they are inadequate—it is altogether possible that those who buy them will consider that they have received their money's worth.

May Lead To Purchase Of Larger Equipment

And later the owners of these small units may decide that they want more air conditioning, and purchase "adequate" installations. In the light of recent experience, it would seem that the air-condi-

They'll Do It Every Time . . . By Jimmie Hatlo



tioning industry is less likely to receive a "black eye" from units which don't give enough cooling effect than it is from installations which give too much.

exchange for original parts, labor included.

Friend Wife Is Still Laughing

Apartment A4, 48-45 46th St.
Woodside, Long Island, N. Y.

Editor:

I just happened to be in the Engineering Societies Library today and to see the June 14 issue of AIR CONDITIONING & REFRIGERATION NEWS. I am still laughing at that title "Research is so Fascinating." It is one of the cleverest captions for a picture of that type that could be printed. The man in the top picture with the sun motor is my husband!

Would you please send me two copies of the June 14 issue, or two tear sheets of just this one page. If there is a charge, I will be very glad to send you my remittance.

If you happen to be in New York, please ask for Mr. Gluesing at the General Electric Exhibit at the Fair. He will take you to the House of Magic and man-made lightning as a guest of the company, so you will not have to wait in line.

FLORENCE GLUESING,
(Mrs. William Gluesing)

Things Aren't So Bad In Oklahoma City

Oklahoma Gas & Electric Co.
Oklahoma City, Okla.

Editor:

I was indeed surprised to read an account of an interview with me as printed in the May 17 issue of AIR CONDITIONING & REFRIGERATION NEWS. This interview was presumably made with Phil B. Redeker and Robert Price.

Some few weeks ago a young man came to my office stating he was making a market survey in Oklahoma City, that he had been down town talking with refrigerator dealers and that he desired to augment his findings with our opinion. He told me most of the things he discovered, but his article makes it appear that I told him the facts that in reality he told me.

As I remember our conversation, the market conditions and the curses of wholesale buying, discount giving, and premium supplying, were in generalities and not confined to the electric refrigeration industry.

I am convinced that electric refrigeration selling in Oklahoma City and vicinity is just as ethical and fair as any place in the nation. The dealers have their problems of course, the same as any place else. To meet

A. S. MEINECKE

Below are prices for which your dealer will install new parts in

	During—								
	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year
Compressor Assembly	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compressor Seal	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Check Valve	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Float Valve	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor Bearings	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor Condenser	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Complete Motor	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belt	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cold Control	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Etc.	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Etc.	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

For Hermetic Type Units

Hermetic Assembly	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cold Control	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Etc.	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Etc.	No Chg.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

emergencies they will make concessions, the same as dealers in other communities. Our dealer turnover is no more than could be reasonably expected; in fact, I believe we have a better condition in this connection than in most communities.

I most assuredly did not make the statement that the manufacturers dump refrigerators on the distributors and the distributors must consequently dump them on the dealers. This is not the condition in the electric refrigeration market.

I do not think distributors of electric refrigerators in our vicinity are forced to accept any dealer, nor do I think these distributors are using unfair tactics to establish new dealers at the expense of other dealers. Any information given your writer in this connection did not come from this office.

The final paragraph of the interview by all means should be repudiated. It is generally accepted that the threat of war in Europe, which was reflected in the stock market, had a serious effect on retail sales. For a long time it has been generally known that industry has not been pleased with the laws made by the government, and, such being, industry has not taken steps for expansion that could be expected normally. All this, of course, has had its effect on the little dealer. However, with all this taken into consideration, no statement was made to your agent to the effect that these conditions were causing the manufacturer to fight both the government and the business-man retailer.

The manufacturer depends on retail outlets for the power to turn the factory's wheels. The retailer is the manufacturer's bread-and-butter, and certainly the manufacturer is going to do nothing to discourage the continuation of his sustenance.

I think investigation of policies of all leading manufacturers of electric refrigerators will show they are doing more to assist dealers than ever before.

It has been the policy of this company to give no interviews, except those which can be furnished in writing. When your man came to this office he made no mention of the fact that he was preparing an article for publication.

I believe that, inasmuch as you have featured this article, you should have given us the privilege of seeing the proof sheet. As it stands, you have made a misstatement of fact which is not the opinion of the undersigned but rather the opinion of the man or men who wrote the article.

H. R. HOHEISEL,
Sales Development Dept.

Answer: Mr. Hoheisel says, "as I remember it." The reporter's answer, "I didn't remember it—I wrote it down," He preserved his notes, and they are on file at this office.

Pay For It? Oh, That's Different

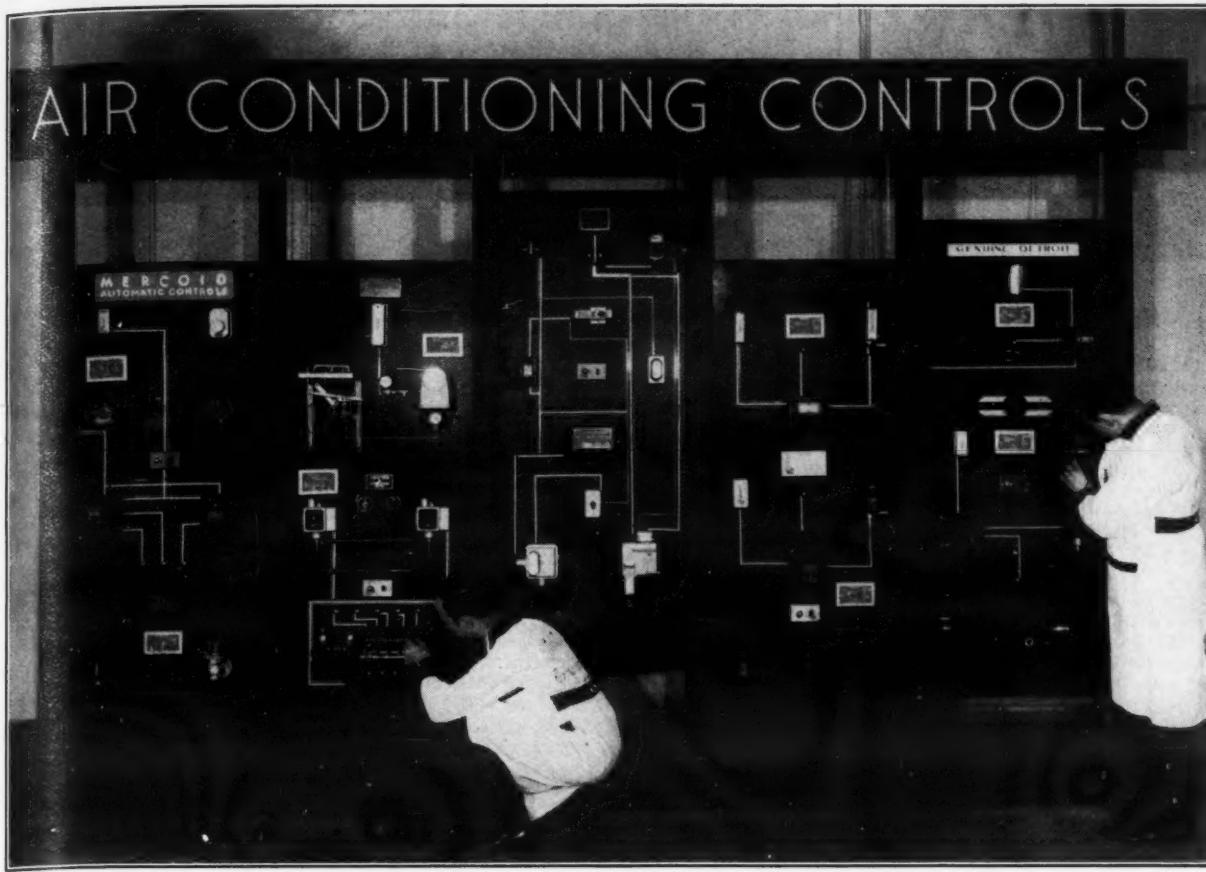
The Calhoun County
Electric Cooperative Association
Rockwell City, Iowa

Sirs:

We would like to have 1,000 copies each of the AIR CONDITIONING & REFRIGERATION NEWS of Sept. 14, 1938, if they are available for free distribution.

If not, we would appreciate an extra copy or two.

L. E. SWANSON

Just Some of the Controls That Can Be Used In Air-Conditioning**Service News****St. Louis Service Concern Doesn't Miss Any Bets To Get Customer 'Call Backs'**

ST. LOUIS—The problem of making refrigerator-repair and general home service customers call back for repeat service has been solved by Frigid Refrigeration Service Co. here, which uses an orderly method of keeping this part of its business under control.

Frigid Refrigeration has been in business in the same location for five years, and has always concentrated on "home" customers along with a sizeable commercial trade in St. Louis and the St. Louis county autonomous district. The company has 10 service men, driving their own cars and operating their own "prospect lists" and followings, and backs this up with an effective campaign to establish the name alone—for as Charles Tanner, vice president, points out—

"The average housewife, when her box gets out of order, thinks of whatever name she has seen, or connected with service in her mind before. What the company does, or how long, doesn't matter—the idea is that whatever name comes to mind usually gets the business, inasmuch as we all charge fairly near the same rate. For that reason, we concentrate on selling our name along with good service. It's the only tenable way of hoping for repeat business later."

"Selling the name" under the company's idea, means playing up the unusual title "Frigid Refrigeration Service" in every way. It's hard to say, Mr. Tanner pointed out, which makes it all the easier to remember—and secondly, it lends itself to prominence on three promotional endeavors of the firm.

First of these is a huge display advertisement in the telephone directory classified pages; large enough instantly to command full attention when the page is turned to. In reverse print, the company title and telephone number are played up

"big," and repeated around the margin.

An actual survey made by the telephone company uncovered the fact that most homeowners, faced with a refrigeration problem, invariably telephoned the first number and name seen, in order to discover what type of service to expect—which was of utmost importance in establishing the first contact.

A duplicate of the telephone advertisement is used for stickers, pasted in the upper right-hand corner of the refrigerator interior, in bright red.

If the box has a remote unit, a card is attached, wired down for permanency—sometimes both.

Russ-Beach Tester Is Used To Cut Loss Of Gas In Testing

FT. WORTH, Tex.—J. N. Sprekelmeyer, air-conditioning dealer here, does not trust ordinary methods for "purging and testing" a "Freon" air-conditioning job. To be sure there are no leaks, he fills the system with CO₂ under 175 lbs. pressure, and leaves it in the system for 36 hours. After checking all joints with soap, he then evacuates the system with a vacuum pump, pulling it down to 45° wet bulb on a Russ-Beach vacuum tester.

The Russ-Beach tester consists of a wet-bulb thermometer enclosed in an air-tight housing. When the air is removed from the system, the "wet-bulb" reading drops to a point which indicates the desired vacuum.

After this has been done, the system is charged with "Freon," and Mr. Sprekelmeyer reports that aggravating "Freon" losses have been reduced to practically nothing by this method.

Extent of Controls In Air Conditioning Is Demonstrated

CHICAGO—The number and variety of controls that find use in year-around air-conditioning systems is graphically demonstrated in a huge, specially designed controls board that has recently been placed in use in the laboratory of the Utilities Engineering Institute here. (See picture on this page.)

The board is designed to combine control systems and devices of leading control manufacturers into a central hook-up duplicating installations which might be found on typical air-conditioning systems.

The makes and types of controls which have a place on the U.E.I. laboratory control board are as follows:

Barber Colman Co.: (Controls for Summer-Winter Central Fan Conditioning Systems) One room microtherm, one supertherm, one duct thermostat, one air stream thermostat, one microvalve, one multiposition damper motor and damper, two S.P.D.T. relays, and one power box.

Detroit Lubricator Co.: (Hot Water Control System) One thermostat, one relay transformer, and one immersion control.

Johnson Service Co.: (Radiator Control) One proportionate room thermostat and one radiator and coil valve.

Mercoid Corp.: (Warm Air Control system and Oil Burner-Stoker) One sensatherm, one furnace circuit control, one pyratherm, one stoker timer. (Low Temperature Conditioning) one thermostat and one remote bulb temperature controller.

Minneapolis-Honeywell Regulator Co.: (Compensated Dry Bulb Temperature Controls Summer Cooling) One remote bulb temperature compensator, one remote bulb temperature controller, one multiple step controller, and one manual positioning switch.

National Regulator Div., Minneapolis-Honeywell Regulator Co.: (Variable Discharge Temperature Controls Summer Cooling) One graduate direct acting room thermostat, one graduate direct acting insertion thermostat and one gradual acting damper motor and damper.

Penn Electric Switch Co.: (Steam Control System) One Temtrol ther-

mostat, one pressure control, one stoker control. (Low Temperature Conditioning) One cooling room thermostat, one low pressure cut-out, and one low pressure cut-out-high pressure safety.

Perfex Corp.: (Hot Water Control System) One thermostat, one hot water control, and one stoker control.

White-Rodgers Electric Co.: (Hot Water Control System) One thermostat, one immersion type hot water control, one stoker control, one surface type hot water control, one pressure control, and one warm air circuit control.

Controls for a complete year-around central air-conditioning system represent one part of this new control board. Included in the arrangement are controls designed for installation outside of buildings which are connected to sub-controls inside the building regulating temperature changes.

Another part of the laboratory device includes controls for oil burners, stokers, and gas heating equipment, which are connected to electrical and pneumatic systems regulating dampers and valves.

One feature of the control board is its counterbalanced, movable, and interchangeable panels assuring easy access to all controls.

Each panel has a separate connection to the power supply which may be turned on by a master switch. Control units are grouped to show typical control systems. Mounting, wiring, and piping follow standard installation practice insofar as the panel board installation permits.

By use of heating elements, pressure lines, and numerous pilot lights,

actual operating conditions are closely simulated. A schematic diagram of each control group, indicating the location of the controls on the job, serves to point out the function of each control. To complete the picture, colored cellophane ribbons trace the connections from one control to the other.

Compact Paint Spray Outfit Introduced

ERIE, Pa.—Low-price paint spray outfit and storage tank has been introduced by Erie Metal Specialties.

Sprayer has no pistons, rings, or cylinder, operating by diaphragm dilation and contraction somewhat similar to the human lungs. This diaphragm is the only moving part.

Storage tank is said to make spraying smoother by cutting down the pulsations and supplying an even flow of air at uniform pressure and temperature.

The unit consists of a 6½-gallon air storage tank on which are mounted the compressor and ¼-hp. motor with overload protection. Two-pole pressure motor control switch cuts in to maintain any desired pressure.

Data Given on Gas Masks

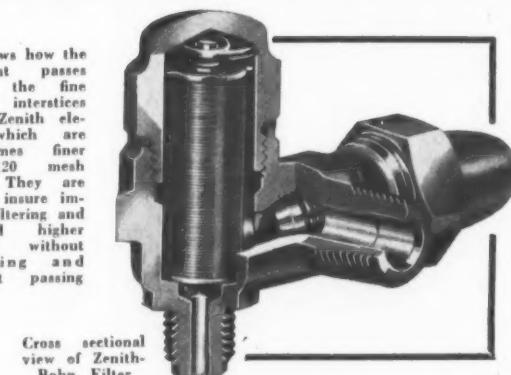
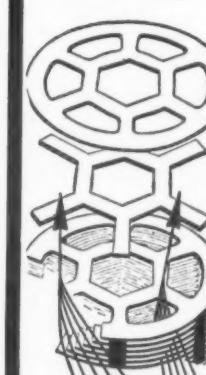
NEW YORK CITY—A bulletin on the "Care and Use of Gas Masks" is being distributed by Davis Emergency Equipment Co., 55 Van Dam St. This bulletin covers points to be observed in selecting, testing, using, and caring for several types of gas masks and accessories.

ZENITH
Refrigerant Filters

INSURE THE LAST WORD
IN COMPLETE FILTRATION
FOR SULPHUR DIOXIDE, FREON AND
METHYL CHLORIDE REFRIGERATION...

BECAUSE extreme pressures will not collapse or burst Zenith's all metallic, edge-type filter elements, you can replace worn out refrigerant filters with the new, patented Zenith Refrigerant Filter and know it will do a far better job. The Zenith filtering element eliminates those objections found in fragile and elastic screens and cloth filtering devices.

Then, too, Zenith Refrigerant



ZENITH CARBURETOR DIVISION
Bendix Aviation Corporation
DETROIT MICHIGAN

GIVES LIFETIME FILTERING EFFICIENCY

DUPONT **Artic**
REG. U.S. PAT. OFF.
The Preferred METHYL CHLORIDE
COAST - TO - COAST Distribution

DU PONT

E. I. DU PONT DE NEMOURS & CO., INC.
The R. & H. Chemicals Dept.
Wilmington, Delaware

District Sales Offices: Baltimore, Boston, Charlotte,
Chicago, Cleveland, Kansas City, Newark,
New York, Philadelphia, Pittsburgh, San Francisco

Association Activities

Heating, Cooling & Plumbing Contractors Combined in Louisville Association

By Henry Knowlton

LOUISVILLE, Ky.—Air-conditioning association activities here now center around the United Heating, Plumbing & Air Conditioning Contractor's Association of Louisville, Ky., reports W. J. Davis of Brandeis Machinery & Supply Co., president of the association.

According to Mr. Davis, an association of air-conditioning contractors was begun in Louisville three or four years ago, and, for a time, a bid depository was operated. Representatives of General Electric, Carrier, York, Airtemp, Westinghouse, and Baker all participated in this group activity.

The arrangement was satisfactory, Mr. Davis reports, until price cutting began in the spring of 1937. At that time several "auction block" jobs came up, and when several firms slashed prices and re-bid jobs in violation of the agreement, the depository broke up.

This organization was known as the Air Conditioning Bureau of Louisville, and as part of the firms were operating union shops and part were not, there was no satisfactory basis for cooperation, Mr. Davis states.

Early last year new union agreements came up, and at this time W. C. Gibson, secretary of the heating association, invited air-conditioning contractors to join the group. Mr. Gibson died early in 1939 and since that time the United association affairs have been handled by Mr. Boswell.

Mr. Davis has found that heating contractors, plumbing contractors, and air-conditioning firms have little in common, except perhaps with relation to labor, and believes that the air-conditioning group in Louisville will eventually form its own association. At the present time Mr. Davis is "going along" with the present set-up, and doing all he can for the common interests of the three types of firms in the group.

According to Mr. Davis, the plumbing and heating firms have been discussing a possible separation from the air-conditioning group, but no definite move in that direction has been made up to the present time. Mr. Davis feels that the situation will work itself out, and does not wish to see any discord develop between the three trades.

Other officers of the association are N. J. Hubbuch, vice president; and Mr. Boswell, secretary and treasurer. Offices are maintained at 411 W. Jefferson St.

Air-conditioning firms represented in the Louisville association are Brandeis Machinery & Supply Co. (Carrier); Breckenridge-Forman, Inc. (York); General Air Conditioning Co. (General Electric); Home Comfortable, Inc. (Airtemp); Krause-Weilage Co. (Carbondale); Liberty Engineering & Mfg. Co. (Baker); Smith Distributing Co. (Frigidaire); and Stewart Distributing Co. (Kelinator). Other firms in the association are engaged in the plumbing and heating business.

Temporary National Council

JOHN H. KELLER, Mechanical Heat & Cold, Inc. (Chairman).....	Detroit
BEN NATKIN, Natkin & Co.	Kansas City
ALFRED EPSTEIN, Independent Refrigeration Co.	Los Angeles
C. E. HANSEN, Smith & Oby Co.	Cleveland
CHARLES E. TUPPER, Charles E. Tupper Co.	Minneapolis
J. N. SPRECKELMEYER, General Air Conditioning Corp.	Fort Worth
A. J. MITCHELL, Straus-Frank Co.	Houston
M. S. LEBAIR, York Ice Machinery Corp.	Philadelphia
WALTER P. DAVIS, Buffalo, Niagara & Eastern Power Corp.	Buffalo
FRED A. HESSICK, Combustion Corp.	Washington, D. C.
J. RALPH SMITH, Combs Lumber Co.	Lexington
JESSE W. PAGE, Page-Williamson, Inc.	Charlotte
CARL BIMEL, The Bimel Co.	Cincinnati
NORMAN H. GAY, Gay Engineering Co.	Los Angeles

Above list gives all members of the national council of the proposed National Air Conditioning Association which have been appointed to date by Chairman John H. Keller. Activities of the council are reported in a monthly bulletin issued by AIR CONDITIONING & REFRIGERATION NEWS.

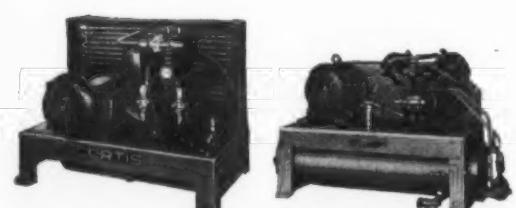
Why Curtis is the Extra Profit Line

THE Curtis Refrigerated Store and Office Cooler materially increases your interest in the Curtis line of refrigeration and air conditioning equipment since it is another reason why you'll make more money handling Curtis products. It opens up a new market for the Curtis dealer—makes possible more sales and profits.

Here is a complete factory designed, packaged air conditioning unit—Mechanically cools, dehumidifies, circulates and filters the air—Adaptable for heating, too—Easily installed—Two sizes, 3 and 5 tons.

If your present line does not include packaged units as well as a complete range of remote equipment, get in touch with Curtis at once.

Wire or write today.



45 Air Cooled Units—42 Water Cooled Units—1/6 to 30 h.p.



A typical installation of the Curtis Store and Office Cooler in a New Orleans office.

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 Kienlen Ave.

CURTIS
REFRIGERATION
AIR CONDITIONING & COMMERCIAL

"Builders of Condensing Units Since 1922"

"Builders of Condensing Units Since 1922"

"Builders of Condensing Units Since 1922"

tion, please let us know, because we feel that the industry needs considerable organization among the contractors.

F. J. BYRNE,
Secretary-Treasurer

Albany Says 'Call on Us'

J. M. Steinhardt, Inc.
340-48 Central Ave.
Albany, N. Y.

Sir:

After having received and read the first four issues of the Bulletin issued by the "Temporary National Council of Air Conditioning Dealers and Contractors," we take this opportunity of extending our sincere compliments.

We have enjoyed reading all of the bulletins and there remains very little doubt in our minds that an organization, as well as a publication of the type proposed and shown, cannot render a tremendous service to the industry as a whole.

The writer who some 13 years ago became closely affiliated with the "American Oil Burner Association" and its dealer division knows only too well the benefits derived by all from a concerted movement such as proposed at the meeting in Chicago, Jan. 17, 1939 and later carried on by the bulletins issued.

We would appreciate very much if you would send a copy of the bulletins to the members of our organization here in Albany, names are as follows, Messrs:

Carl Gottlieb, Jr., 92 Van Rensselaer Blvd.
Fred Chadwick, 100 Willett St.
Edward Andrews, 60 Benson St.
Harry Horowitz, 785 Park Ave.
Lester Dings, 285 Third St.
Francis Grande, 174 Delaware Ave.
Bernard Sill, 13 Walter St.

The above men are members of the firm and in the order listed are respectfully our engineer, field representative, supervisor, retail sales manager, service manager, and the last two are installation crew managers.

The writer should also like you to send him a copy at his home address, 775 Myrtle Ave., Albany, N. Y.

We also have a dealer organization consisting of 37 outlets and if at all possible we should like to have you send us 37 extra Bulletins so that we could mail these to our respective dealers.

We want you to feel free to call upon us should there be anything with which we can aid you in our particular neighborhood.

We are mindful of the purpose and respect the cause.

Looking forward to the next issue of the Bulletin, we are

CHARLES B. BENDIX,
Manager, Delco-Frigidaire Dept.

Newark Dealers Disagree

Blocker Air Conditioning Corp.
Newark, N. J.

Sir:

We have been very much interested in reading about the proposed National Air Conditioning Association. Can you place us on the mailing list to receive notices of meetings which may take place?

We attempted to form a local Air Conditioning Association here about two years ago but it lasted only about six months due to the inability of the members to agree on the subject of labor.

If we can be of any active assistance in connection with the Associa-

tion, please let us know, because we feel that the industry needs considerable organization among the contractors.

F. J. BYRNE,
Secretary-Treasurer

The Curtis Publishing Co.
Philadelphia, Pa., U. S. A.

Sirs:

We should like to take advantage of the offer made in a recent issue of AIR CONDITIONING & REFRIGERATION NEWS. May we have copies of the bulletin of the National Air Conditioning Association.

DONALD M. HOBART,
Division of Commercial Research

Gentlemen:

Please send us two (2) copies of Bulletin No. 4 of June, 1939 and oblige.

LEANDER MARX, President

With best personal regards, I remain

E. S. HILDRETH, Secy.

From New Orleans

American Heating & Plumbing Co., Inc.
New Orleans, La.

Gentlemen:

Please send us two (2) copies of Bulletin No. 4 of June, 1939 and oblige.

LEANDER MARX, President

... and New York

Anemostat Corporation of America
10 East 39th St.
New York

Gentlemen:

Will you please furnish us with a complete set of bulletins of the National Air Conditioning Association and place us on your mailing list for future issues.

LEE EILS, Sales Engineer

Canadian Association Reports Successful Activities At Conclusion of First Year

TORONTO, Ontario, Canada—W. H. Evans of Minneapolis Honeywell Regulator Co., Ltd. was elected chairman of the Air Conditioning Industries Branch of the Toronto Board of Trade at the beginning of its second year of service to the Canadian air-conditioning industry.

The Branch was formed one year ago "because of an evident need for a strong association embracing all those engaged in these industries throughout the Dominion—to foster desirable trade practices and prevent the growth of undesirable ones—practices which, if allowed to grow unchecked, would become a source of annoyance and expense to the industry, and would be detrimental to the interests of the public generally.

W. G. Mason, General Steel Wares, Ltd., was elected vice chairman, and C. R. Davis, Davis Automatic Controls Co.; C. C. Helig, Canadian Westinghouse Co., Ltd.; A. S. Morgan, the Fess Oil Burners of Canada, Ltd.; H. R. Roth, the Canadian Sirocco Co., Ltd.; and R. A. Stencel, the Canadian Ice Machine Co., Ltd. were elected to the executive committee. E. C. Williams of Canadian General Electric Co., retiring chairman, will also continue as a member of the governing body.

In reporting progress during the past year, Mr. Williams stated that his hope was that the organization would effectively influence the formulation of codes and by-laws so as to ensure that the public was adequately protected, and that operations of the industry itself would not be unduly hampered by unreasonable restrictions.

He stated further that the success of the organization during the past year constituted a complete justification for the formation of the organization and was evidence of what could be accomplished by a group of individuals within any industry who are imbued with a sincere desire to promote the well-being of such an industry.

Mr. Williams gave the following resume of the things which have engaged the attention of the Branch during the past year:

Definition of Air Conditioning—The task of formulating a definition of the term "air conditioning" which would govern advertising within the industry and preclude the use of the term outside the industry was begun.

Correspondence Trade Schools—The Branch endeavored to ascertain the possibilities which exist for graduates of correspondence trade schools to find employment in the industry on completion of their courses. The Branch is hopeful that, with the advent of the Trade Schools Regulation Act, 1938, that the number of students being enrolled in correspondence schools will be maintained at a point where those graduating will not outnumber possible vacancies for such students in the industry in this Province.

Proposed Refrigeration Code—Suggestions have been made to the Canadian Engineering Standards Association requesting amendments in the draft of the proposed Refrig-

eration Code. According to Mr. Williams, the proposed Refrigeration Code, as now drafted, contains many concessions to interested manufacturers which might not otherwise have been possible.

Effect of Air Conditioning on Water and Sewerage Facilities—Following the report of the Commissioner of Works (city of Toronto) concerning the effect of air-conditioning installations on the water and sewerage facilities of the city, conferences were held with the view to formulating some plan of limitation whereby the installation of air-conditioning equipment might be adequately regulated and additional expenditure for water distribution and sewerage service in the city might be avoided.

No ruling on this question has been made to date, but the Branch feels that recommendations made to city officials will be given full consideration.

Trade Practices—Members of the Branch have been benefited by a discussion of trade practices, objectionable and otherwise, throughout the year.

National Building Code—Preparation of the National Building Code is being followed closely by the Branch in order to be in a position to make recommendations when sections affecting the air-conditioning industry are released.

Minimum Requirements for Comfort Air Conditioning—The Branch decided to cooperate with the minimum requirement standards adopted by the American Society of Heating & Ventilating Engineers and the American Society of Refrigerating Engineers in order to protect the buying public against the installation of equipment improperly designed to accomplish what is expected of it.

City of Ottawa Fire Code—The Branch also gave consideration to the proposed new City of Ottawa Fire Code. Insofar as air-conditioning equipment was concerned, it was desired to avoid (a) hot air or flames being drawn into a return duct and distributed throughout the remainder of a building, (b) fanning of the blaze by air discharging from a grill, and (c) distribution throughout the building of smoke drawn into a return duct.

During the first year the Branch also gave consideration to Ontario Bill No. 96 to permit the regulation of hot air heating installations by municipalities; regulation of the installation of heating equipment; codes under consideration in various cities; statistics for the air-conditioning industry; a new Ontario schedule of boiler inspection fees; reciprocal agreements with the province of Quebec concerning the licensing of fitters and mechanics operating between provinces; and cooperation with the Professional Engineers of Ontario, the Canadian Refrigeration and Air Conditioning Association, and the Oil Heating Branch of the Board of Trade. The group also took up the matter of a suitable insignia to be used by Branch members in connection with advertising.

CHI in mo recent powerd Burlin The b air-con which Yellow Gener Mich. Built and "Diesel" gers, conven comfort "air fo seats, ter double special ging, arn compl Accor Capacit be great 37 passe only 28. ton com recent e the bus front doo on a 98 spected t hour ins within t 15 to 20% ST. LO recently store-cool capacities. Provision addition standard coil, if de vide on

Passenger atmospher

Bus Air Conditioning

Big Fleet of Diesel-Motored Buses Built With Comfort Cooling

CHICAGO—Indicative of the trend in mobile air conditioning is the recent delivery of 25 new Diesel-powered air-conditioned buses to the Burlington Transportation Co. here. The buses are part of a fleet of 225 air-conditioned buses of similar type which are now being built by the Yellow Coach & Truck division of General Motors Corp. at Pontiac, Mich.

Built for service between Chicago and California, the Burlington "DieselLiners" will seat 28 passengers, and incorporate all possible conveniences making for passenger comfort including air conditioning, "air foam" sponge rubber reclining seats, non-breakable lenses on interior lighting, venetian-type blinds, double safety-glass windows having special construction to prevent fogging, and harmonious interior decorations.

Air-conditioning equipment for the new buses was built for the Yellow Coach Co. by Frigidaire, the units having a total of 4 tons in capacity. Air is introduced to the interior of the buses through a perforated ceiling at the rate of 1,200 c.f.m. providing a complete air change every 1.3 minutes. Roof and walls are completely insulated.

According to engineers of the Yellow Coach Co., total weight added to the bus by the air-conditioning system is 890 lbs., including all equipment. The system is located in the rear of the bus, in a portion of space normally devoted to luggage. Outside air entering the system is drawn through filters and then across Frigidaire direct-expansion coils before it is released into the bus.

Capacity of the system is said to be great enough to handle a load of 37 passengers, while the bus seats only 28. Executives of the Burlington company report that during a recent eastern exhibition tour one of the buses was parked with both the front door and emergency door open on a 98° day while the public inspected the bus. During the eight-hour inspection period temperature within the bus was held at from 15 to 20° below outside temperature.

New 3 and 5 Ton Units

ST. LOUIS—Scott-Newcomb, Inc. recently has put on the market a store-cooling unit in 3 and 5-ton capacities.

Provision is made in the units for addition of a heating coil to the standard cooling and dehumidifying coil, if desired. Grilles are adjustable, and auxiliary outlets are provided on either side.

Air Conditioned 'Dieseliner' Bus



Passengers in Burlington's new "Dieseliner" relax in clean, quiet atmosphere provided by Frigidaire 4-ton air-conditioning system. Double glass and insulation reduce the cooling load.

Falcon Motor Coaches Conditioned By Trane

MUSKEGON, Mich.—Fitzjohn-Falcon motor buses are now being built with complete Trane air-conditioning equipment by the Fitzjohn Body Co. here. The 33-passenger units are equipped with Trane cooling and fan unit and Trane compressor unit.

Air distribution in the new Falcons is by means of an overhead duct connected to ceiling-type Anemostats located over the heads of passengers. Return air is taken into the top of the coil-fan unit through an opening just behind the rear seat.

The equipment is said to be compact, light in weight, and economical in performance, requiring less than a half-gallon of gasoline per hour. Other features are fully automatic operation, variable speed fans, and modulated control. The system operates entirely independent of the bus engine.

Explorer Travels In Air-Cooled Trailer

SCHENECTADY, N. Y.—The four air-conditioned motor units in the Lawrence Thaw trans-Asiatic expedition will be able to maintain contact with each other even when separated by distances as great as 200 miles, it was found by General Electric Co. engineers in making final tests of the equipment.

The radio equipment, designed and built by G-E, will permit short-distance transmission and reception between each of the two trucks, trailer, and cruiser sedan by the use of four ultra-high frequency transmitters and communication type receivers. Two medium-high transmitters have also been installed in the cruiser sedan and trailer.

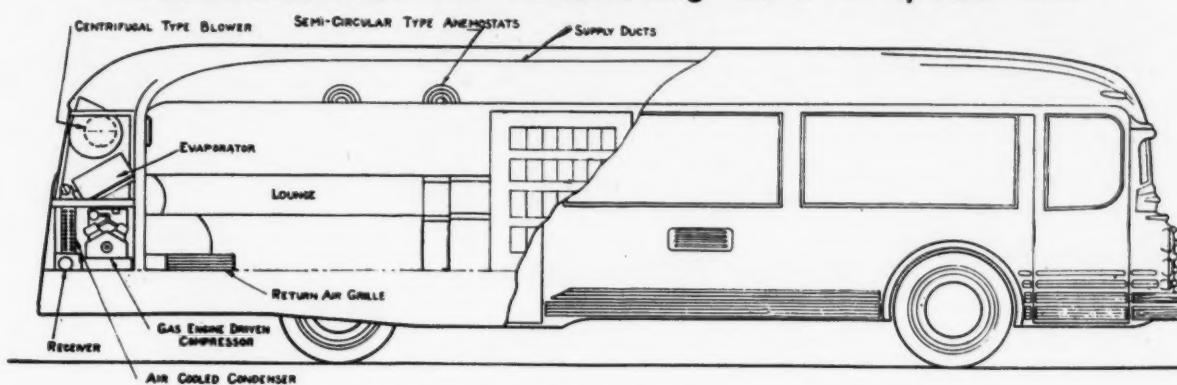
The deluxe trailer is air conditioned throughout, and contains all the appliances and equipment found in a well-furnished home. Equipment includes a tiled bath, indirect lighting, a lounge, sleeping compartments with mattresses of sponge rubber, as well as vacuum cleaner, washer, ironer, toaster, and other electrical devices.

The expedition left New York last month, and will start from Paris on a 14,000-mile tour that will terminate in Bombay, India sometime next spring.

Apartment Units Sold

WASHINGTON, D. C.—One hundred Pleasantaire room coolers have been installed in as many one-room efficiency apartments in the Capital district by John L. Barr, apartment house owner. Mr. Barr recently purchased 200 Pleasantaire units in one order.

Fairbanks-Morse Air Conditioning Used In Special Bus



Comfort For Visitors Features New Coach

PONCA CITY, Okla.—Fairbanks-Morse air-conditioning equipment was used in a new White motor coach recently delivered to the Continental Oil Co. here. The special coach is used to exhibit products of the company to dealers and to the general public throughout the middle west.

The complete air-conditioning system is located in the rear of the bus and air ducts were installed on both sides of the window line to conserve head room. The gas engine driven air-cooled condensing unit is mounted crosswise of the bus in the rear and gets its fuel supply from the main gasoline tanks.

The unit includes its own generator for supplying power to the battery from which the gas engine starting motor operates. The entire power

unit is mounted on cork to eliminate vibration and deaden all sounds from the engine.

The low side, or fan unit, is located directly above the gas engine and compressor, and is complete with its own cooling coils, blower, motor, and filters. The gas engine-compressor unit is completely insulated from the bus by means of 4 inches of cork insulation.

Air is drawn into the cooling unit from the outside through fresh air louvers, and is mixed with the return air from the inside of the bus from grilles located on the floor line. The cooling coil refrigerated by the condensing unit extracts moisture and cools the air before it is discharged into the ductwork by the special pressure-type blower.

Anemostats placed at predetermined intervals in the ductwork diffuse the air slowly into the bus interior to create comfortable, draftless air distribution. Some 1,300 c.f.m. is introduced into the interior, and the air is changed every 1.3

minutes. Ceiling and walls are insulated.

Operation of the conditioning equipment is entirely automatic, after its initial start. A thermostat set at the desired temperature controls the operation of the gas engine unit by starting it when the temperature rises above the setting, and stopping it when cooling is no longer required.

Warning lights are located on a panel over the head of the driver, to indicate immediately if any part of the system needs attention due to unnatural causes. All parts of the system are readily accessible for service. The gas engine unit is mounted on tracks, and may be rolled out of the bus if attention is required.

Connections from the gas engine unit to the air-cooling unit are of flexible tubing, to minimize any shocks to the system through poor road conditions, and also to allow the unit to be taken out of the bus without disconnecting "Freon" lines.

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HOW
FEDDERS AIR CONDITIONING
COILS GIVE SIMPLE Adjustable
Control of Each Refrigerant
Circuit

Fedders high efficiency refrigerant distributor provides simple, convenient, accurate adjustment of refrigerant flow in each circuit of the coil . . . refrigerant flooding eliminated. Adjustment is easily made in the field to suit the load.

Fedders distribution control eliminates dead spots in the coil thus bringing the entire heat transfer surface up to maximum efficiency.

Each refrigerant circuit is of equal length and designed for minimum pressure drop. All possibility of oil trapping is eliminated.

All-Copper surface and staggered tubes provide and maintain maximum heat transfer and air handling efficiency.

Box type galvanized ARMCO Ingots Iron casings with special rust-proof coating are arranged for banking coils side-by-side, end-to-end and one above the other.

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Write for new Bulletin 392 giving complete working data.

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Installation Methods

Use of Proper Installation Methods and Accessories When Job Is Being Installed Will Forestall Many Service Calls

Editor's Note: This is the third and concluding instalment of an article extracted from a 1939 bulletin of the General Electric air-conditioning department covering "Installation Instructions for Piping for Condensing Units." It describes many phases of latest practice in the installation of refrigerating machines.

When two or more room coolers are connected to the same suction line, the piping must be installed so as to prevent trapping oil. This precaution is necessary only when each cooler has a solenoid valve in its liquid line.

When the suction line is located above the level of the coolers, goose-neck bends should be placed in the individual suction lines as shown in Fig. 2.

When the suction line is located below the level of the coolers, it should slope down toward the condensing unit, as shown in Fig. 3.

Service Valve Connections

When connecting tubing to a service valve having an SAE type

fitting, first be sure the valve is front seated (closed). Remove the flare nut from the valve, take out the seal bonnet, and slip the flare nut over the tubing. Flare the tubing as explained previously, and screw the flare nut in place on the valve.

When it is desired to make an SAE type connection with hard copper pipe, it is necessary to anneal the pipe by heating it with a torch before proceeding with the flaring operation.

When connecting a refrigerant line to a service valve having a flanged connector, remove the connector from the valve before soldering it to the pipe. Never sweat the pipe to the connector with the connector in place on the valve, as there is danger of excess solder dripping into the

Fig. 2—Suction Line Above Cooling Units

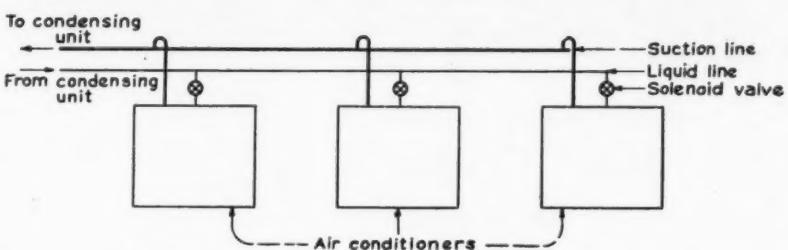
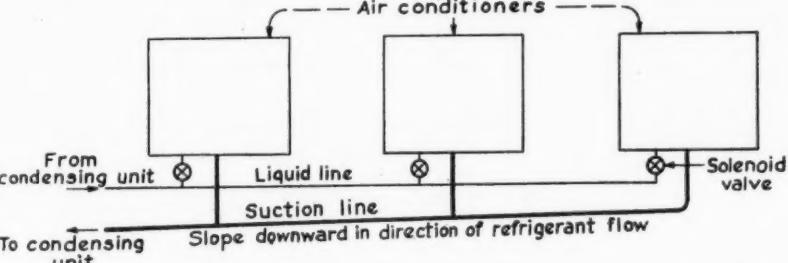


Fig. 3—Suction Line Below Cooling Units



valve; there is also the possibility of damaging the ring gasket.

Heat the fitting as evenly as possible, and allow sufficient time for it to cool after the solder has been applied. Refer to "Method of Making Sweated Joints."

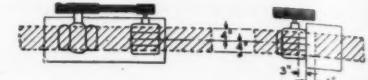
Flexible Refrigerant Connections

Condensing units mounted on resilient mountings or on weak flooring where vibratory movement of the unit may occur should be equipped with flexible suction, liquid, water, and power lines. Such flexibility will prevent fatigue failure of piping

when the hose is a single straight section.

Single straight sections of flexible hose placed horizontally and parallel

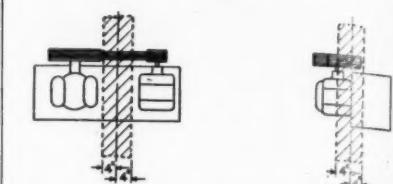
Fig. 5



to the long axis of the condensing unit should be placed within the shaded area shown in Fig. 5.

Single straight sections of flexible hose placed horizontally and parallel to the short axis of the condensing

Fig. 6



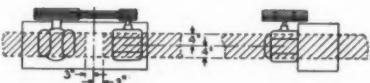
unit should be placed within the shaded area shown in Fig. 6.

Resilient mountings which are extremely soft such as mountings designed to isolate extremely low frequency vibrations require the use of two sections of flexible hose installed at 90° to each other. Such an installation will provide for more direction of movement of the condensing unit than will the straight line installation. A 90° installation can be made in any position.

Anchorage for the rigid portion of the suction and liquid lines should be provided as close to the section of hose as possible. This anchorage should prevent movement of the pipe in any direction.

The usual predominating motion

Fig. 4



of the condensing unit is a torsional motion about the long horizontal axis of the unit and a torsional motion about the vertical axis. Hose located vertically should be confined within the shaded area of Fig. 4

G-E Condensing Unit Refrigerant Connections

Condensing Unit	H.P.	No.	Valve Size Inches	Suction Service Valve No. Type		Suction Service Valve No. Type	
				1933-34 MODELS	1935 MODELS	1936 MODELS	1937-38 MODELS
CM4A	1	1	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM4W	1	1	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM5A	1, 1 1/2	1	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM5W	1, 1 1/2	1	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM57	1	1	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM6A	2	2	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM6W	2	2	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM8W	3	2	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM8W	5	2	1/2	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE	SAE 1 1/4 SAE
CM9W	7 1/2, 10	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM10W	15, 20	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
1935 MODELS							
CM5S	1 1/2	1	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM61S	1 1/2	2	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM81W	3	4	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM81L	5	4	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM81S	5	4	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM9L	7 1/2, 10	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM10L	15, 20	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
1936 MODELS							
CM52A	1	1	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM52T	1	1	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM62A	1 1/2, 2	2	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM62T	2	2	1/2	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE	SAE 1 1/2 SAE
CM92K	7 1/2	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM102K	15	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM102L	20	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM122L	40	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
1937-38 MODELS							
CM52A	1, 1 1/2	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM62A	2	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM62T	3	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM52T	1	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM62T	1 1/2	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM82T	5	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM82N	7 1/2	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM93K,T	10	1	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM193L,N	15	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM103T,K	20	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
CM103L,N	25	2	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
(a) CM123H	30	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
(a) CM123K	40	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
(a) CM123L	50	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
(b) CM123H	30	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
(b) CM123K	40	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE
(b) CM123L	50	4	1 1/2 OD	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE	Sweat 1 1/2 SAE

(a) Sizes are for "A" models. (b) Sizes are for "C" models.

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5229 Cass Ave., Detroit, Mich.

Use of Driers on New Installations Is Advised as Aid To Better Results

(Concluded from Page 14, Column 5)
the hose should be anchored to the building.

Suction and Liquid Line Strainers

Suction and liquid line strainers should be installed in all air-conditioning systems.

Strainers of a size equivalent to the refrigerant line size should be used with all units. If this rule is followed the pressure drop through the strainer or strainers will not exceed the pressure drop through 10 feet of refrigerant line.

The liquid strainers should be installed in the liquid refrigerant line as near the expansion valve as possible on the high pressure side.

If this is done the expansion valve will be fully protected from any foreign particles such as solder, flux, copper filings, etc., which may be liberated when making up refrigerant connections.

Suction Line Manifold

Suction line manifold catalog No. 19A19A263 is a combination suction line strainer and manifold for connecting the four individual suction service valves on the type CM-123 compressors to a common suction line. As shown in Fig. 7 this manifold has four 1½-inch connections for the suction service valves and a connection for a 4½-inch O.D. common suction line.

Assembly of the manifold to the compressor is made by means of four couplings, three of which are of the flexible bellows type to facilitate assembly and allow for variations in the location of the suction service valves and the fourth is a solid connection which supports the weight of the manifold.

Remove the companion flanges from the suction service valves.

Loosen suction service valve hold-down bolts.

Assemble manifold using a gasket in each of the four flanges. If difficulty is encountered in the assembly, the removal of one or more valves from the compressor may facilitate the assembly. The valves can be reassembled to the compressor after the manifold is in place.

Tighten the suction service valves to the compressor after the manifold flanges have been bolted to the service valves but the flange bolts not severely tightened.

Tighten manifold flange bolts.

DON'T BEND BELLOWS

Bellows couplings between the manifold and the suction service valve may appear bent or twisted due to misalignment but this condition need not cause any concern as the flexible couplings are for the purpose of taking up the misalignment. Care should be taken not to dent the bellows.

Solder the main suction line to the manifold companion flange after first removing the manifold and gasket. This procedure will prevent burning the gasket between the flanges. The suction line should be built up and supported before the joints closest to the compressor are soldered in order that the manifold will not be required to support the weight of the suction line.

Resilient mounting or weak floor-

ing may cause movement of the condensing unit and it is recommended that a section of flexible metal hose be assembled in the suction line above the manifold, to take care of any vibration.

In some cases it may be desirable to use a cleanable type liquid line strainer instead of the standard strainers. The General Electric Co. does not carry cleanable liquid line strainers in stock. When such strainers are desired refer directly to the Henry Valve Co., Chicago.

In some applications trouble may be experienced from rattling of the screen in the suction manifold. A Neoprene gasket covered by catalog No. 19C20A519 is available and can be installed in manifolds giving trouble from rattling.

The gaskets should be slipped down over the screen assembly until it contacts the flange, then the screen inserted in the body of the assembly. When the flange is bolted in place, the Neoprene gasket is squeezed between the screen flange and the body of the manifold; this holds the screen securely in place.

Refrigerant Driers

A refrigerant drier must be used on each "Freon" refrigerant system installed with hard-drawn copper pipe, at the time it is placed in operation. It is good practice to use a drier on all "Freon" systems, regardless of whether soft-drawn copper tubing or hard-drawn copper pipe is used. This procedure will prevent future trouble caused by moisture entering a "Freon" refrigerant system at the time of installation.

No refrigerant drier should be kept in the line because fine particles of the drying agent will eventually pass into the refrigerant system.

A drier should be installed on each new installation to remove any moisture which may have entered the system. They should also be used at the first sign of moisture in a system.

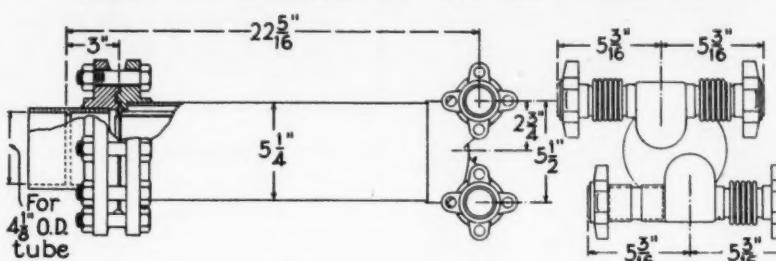
Remove the brass flare nuts and copper bonnets that seal the inlet and outlet ports against moisture, and connect the drier cartridge in the liquid line of the system near the condensing unit. The most convenient method is to connect the inlet of the drier to the outlet of the liquid strainer, by means of a suitable coupling, or on condensing units not having a strainer, to connect the drier to the outlet of the liquid receiver.

OUTLET CONNECTIONS

The outlet of the drier is connected directly to the liquid line. After the system has been in operation, and it is time to remove the drier cartridge, first close the valve on the outlet of the liquid receiver, and allow the condensing unit to run until the system has been pumped down to about 1 lb. back pressure. The drier cartridge may then be removed, the liquid line reconnected to the condensing unit, and the system purged.

A simple and economical method of inserting a refrigerant drier in the piping of a cooling system is illustrated in Fig. 8. Valve "B" (liquid service valve) is already installed in the liquid outlet of the condenser-receiver, thus no extra equipment need be purchased.

Fig. 7—Outline of Suction Manifold



The system must be first pumped down to insure against losing any of the refrigerant. Then the drier is inserted as shown. Valve "B" is opened, the refrigerant passed through the drier; and after the moisture is removed from the line, valve "B" is closed, the drier removed from the line, and the piping reconnected.

Care must be taken after pumping down the system to equalize the pressure in the low side slightly above atmospheric pressure (not more than 1 lb. above) to insure against moisture and dirt entering the system while installing or removing a drier.

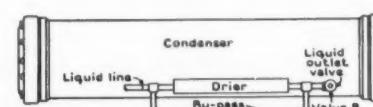
CAUTION ON BARIUM OXIDE

Caution: Barium oxide expands as it absorbs moisture and may, if left in the system too long, burst the asbestos sack and the screen. Therefore, it is recommended that barium oxide driers be left in the system not more than 24 hours.

Because of the fact that heat is generated when an appreciable quantity of moisture comes in contact with the barium oxide, it will be possible to tell the approximate quantity of moisture in a system by observing whether the drier gets hot.

If the driers warm up appreciably, it is then advisable to check the driers at the end of four hours and change the barium oxide.

Fig. 8



One charge of barium oxide, which is approximately 1 1/4 lbs., will absorb approximately 15 cc of moisture without expanding the material to the extent that the sack and screen will break or make it impossible to remove the spent barium oxide for the purpose of recharging the drier.

Barium Oxide Drier By-Pass

When barium oxide refrigerant driers are connected in a system it is recommended that a by-pass line approximately one half the size of the liquid line be placed around the drier (see Fig. 8). This will prevent blowing out the refrigerant drier material, should it absorb sufficient moisture to swell and plug the drier.

Activated Alumina driers should be left in the line for a period of several hours, but not longer than 24. If the system contains an excessive amount of moisture, the drier should be recharged with Activated Alumina and the process repeated until the charge taken from the drier appears reasonably dry.

If care is taken to keep moisture out of the system during the installation of the tubing, the drier will ordinarily dehydrate the system as much as possible within four or five hours.

BEFORE RECHARGING

Before recharging the cartridge with either Activated Alumina or barium oxide it is important that all parts of the drier be cleaned using carbon tetrachloride or anhydrous methyl alcohol.

When reassembling the drier cartridge, always use a new flange gasket. The charging operation should be done as quickly as possible to prevent the drier material from absorbing too much moisture from the air.

After recharging the cartridge always check to see that the two end flare fittings are capped until ready to install in the refrigerant line so that the drier material is not exposed to the air.

When recharging the cartridge with Activated Alumina, always replace the brass wool strainer with a new strainer.

The alumina can be reactivated after use by heating it to from 400 to 600° F. in an oven. It should be

sufficient to carry away any small particles in the water. Also, the construction of the water-regulating valve is such that it is not apt to become clogged.

It is desirable to place the water regulating valve at the inlet side of the condenser rather than at the outlet. In the event of the condenser developing a leak the gradual loss of refrigerant will close the valve and prevent the city water pressure from flooding the entire refrigerant circuit.

In addition, mineral salts in the warm leaving water are less apt to deposit on the valve, rendering it inoperative, if the valve is in the cold water side.

DRAIN SHOULD BE LOWER

The waste water from the condenser should preferably be run to a drain lower than the condensing unit. When necessary, it may be run to a drain above the unit.

Always break the drain line somewhere in its course, or run it to an open drain or sink. Never connect it directly to a soil pipe or closed drain, as there is danger of a sewer backup; moreover most cities' plumbing codes prohibit such a connection.

Filtrine

Water Coolers—Filters
Cafeteria—Industrial
Commercial Surge Tanks
Remote Pipe Coils
Filtrine Mfg. Co., Brooklyn, N.Y.

for
BETTER SERVICE
EXTRA DRY
ESOTOO
V-METH-L
METHYLENE CHLORIDE

VIRGINIA SMELTING CO.
WEST NORFOLK, VA.

Anaconda Copper
Refrigeration Tubes
Unusually long lengths!

ANACONDA
COPPER
TUBES
FOR
REFRIGERATION
SYSTEMS
EXTRA DRY
ESOTOO
V-METH-L
METHYLENE CHLORIDE

THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

Copeland Standards

Deliver Trouble-free Service

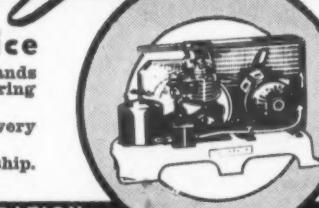
Throughout the world, in hundreds of thousands of installations, Copeland units are delivering economical, trouble-free performance.

There is a Copeland condensing unit for every refrigeration and air conditioning need.

Twenty-one years of refrigeration leadership.

Write today for complete information.

COPELAND REFRIGERATION CORPORATION
Sidney - Ohio



Sell Something Easy to SELL!

The New H. & H.

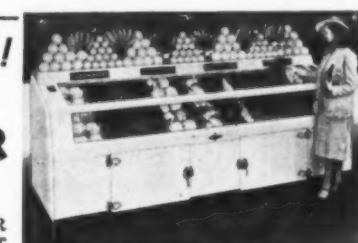
PRO-DU-SELLER

Double Duty Vegetable Case

Designed by a Master Merchant FOR MERCHANTS. Height 52 in. New hydrator refrigeration principle. Equipped with exclusive H. & H. illuminated "Sales Increaser" Panels. The fastest selling, biggest money making case on the market. Get this case in your line NOW.

Write for information regarding franchise for H. & H. Refrigerator Products in Your Territory

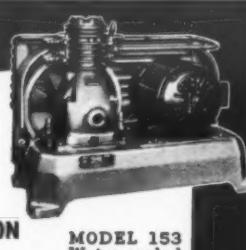
HOLCOMB & HOKE MFG. CO., Indianapolis, Indiana



Add Our Experience to Yours...



If a comfort-cooling, product-cooling or heavy-duty refrigeration unit is needed as an essential part of equipment you make, sell, or use—enlist GR-Lipman specialized engineering knowledge and service-tested units. Add our experience to yours.



GENERAL REFRIGERATION CORPORATION
Dept. AC-3 Beloit, Wis., U.S.A.

SERVEL Silver Fleet

Smooth and silent as a sailboat, Servel's "Silver Fleet" refrigerating machines offer you a standard of operating efficiency that is 3 to 5 years ahead of the field. Ask for the new 72-page catalog. Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Ind.

COMMERCIAL REFRIGERATING MACHINES

Many Refinements Mark New Line Of Kelvinator Water Coolers

(Concluded from Page 1, Column 4) clogging by a screen underneath the drain plate, and cold water lines and fittings are insulated with sponge rubber tubing to prevent condensation. The coolers are insulated with ground cork, and have adjustable temperature control.

In addition to a fast cooling water reservoir, large capacity pre-cooler also is provided in the units. Cooling unit incorporates a capillary relief tube, to prevent possible damage from freezing. A connection for remote outlet is provided at the rear of the cabinet.

Condensing unit powering the coolers is claimed to be quiet in operation, and is spring and rubber mounted to minimize vibration. Base

of the coolers is scuff-proof. Auxiliary connection for glass filler is available on pressure-type models at extra cost.

Of the two bottle-type models, B2, for small offices, has a capacity of 2½ gallons per hour, with 3-quart reserve. Model BWC4, with refrigerated storage compartment, has a 4-gallons-per-hour capacity and 3-quart reserve.

Pressure-type models range from the PF3, with 3-gallon-per-hour capacity and 3-quart reserve, to the WPB915 with a capacity from 9 to 15 gallons per hour and 4-quart reserve. Intermediate models, PB59 and PB814, have capacities of 5 to 9 and 8 to 14 gallons per hour, respectively.

THE BUYER'S GUIDE

WATER COOLING EQUIPMENT FOR AIR CONDITIONING

WE BUILD ESPECIALLY FOR YOUR OPERATION

ASK FOR LITERATURE ON DRY-EX COOLERS

ACME INDUSTRIES, Inc.

Jackson

Michigan



Chieftain

FIELD DEMAND + TECUMSEH = NEW HEAVY
FOR RUGGED UNITS + ENGINEERING & PRECISION = DUTY COMMERCIAL UNITS

TECUMSEH PRODUCTS CO., TECUMSEH, MICH.
Canadian distributor: Refrigeration Supplies Co., Ltd., London, Ontario

ATTENTION

REFRIGERATION AND APPLIANCE DEALERS

A BLIZZARD FROM THE WEST That has everything

NO

More Wet Bottles
More Loose Labels
More Wet Hands
More Dissatisfied Customers

IT

Is More Sanitary
Has Fast Dry Cooling
Has More Capacity
Has Balanced Refrigeration

Territories Now Open * Write for Particulars

WEBER SHOWCASE & FIXTURE CO., INC.
5700 Avalon Boulevard • Los Angeles, California
Established 1902
Cable "Weberco"



HUMI-TEMP UNITS



LARKIN
WILL— Make You More Money—
Win You More Customers

Today—See Your Jobber or Write Direct to

LARKIN COILS, INC.
519 Fair St., S.E., ATLANTA, GA.
Branch Factory—57-59 11th St., New York City

50% More Cooling Surface
VERTI-COIL
DID YOU EVER LOSE A SALE
because you offered a limited line of milk-cooling equipment? Wilson Systems offer an efficient LIFE-TESTED cooler for EVERY type of requirement. VERTI-COIL COOLER, for instance, cools and stores one milking daily with NATURAL circulation of the water bath produced by the only efficient cooling coil arrangement (patented). NO MECHANICAL AGITATION NECESSARY. COOLS ALL THE MILK IN LESS TIME . . . PERFECT SANITATION . . . LOW OPERATING COSTS . . . LONG LIFE.

WRITE FOR DEALER PROPOSITION

WILSON CABINET CORP. SMYRNA DEL.

QUESTIONS

Seeks Estimate Sheets For Figuring Jobs

No. 3389 (Parts & Supply Jobber, Colorado)—"We are interested in obtaining Estimate Sheets for figuring commercial refrigeration jobs."

"If you have any available, please send us 100. If not, would appreciate your forwarding this inquiry to some one who has."

Answer: Published in the March 22, 1939 issue of AIR CONDITIONING & REFRIGERATION NEWS is a chart, accompanied by an explanation, which is designed for this purpose. It comprises a new and short cut method of figuring loads.

'Metal Star' Cooler

No. 3390 (Dealer, New York)—"Will you kindly advise us as to who builds the 'Metal Star' walk-in-cooler. We understand their address is Philadelphia, Pa."

Answer: Star Metal Mfg. Co., Trenton Ave. & Ann St., Philadelphia, Pa.

Makers of Soda Fountains

No. 3391 (Refrigeration Service Co., Georgia)—"Would you be so kind as to put us in touch with firms selling ice cream freezers, cabinets, and soda fountain equipment?"

Answer: Lists of firms which manufacture this equipment are given on pages 77, 78, 79, and 80 of the 1939 Refrigeration and Air Conditioning Directory, which we publish, and which is available at a cost of only \$1.00 per copy.

This 216-page book is the "buyer's guide" of the refrigeration and air-conditioning industry, giving classified listings of all known manufacturers of refrigeration and air-conditioning products.

Parts For a Rice Unit

No. 3392 (Manufacturer, New York)—"We have received an inquiry with respect to a Rice refrigerator which is equipped with one of our motors. Our correspondent asks us if we can give him the address of the Rice Products Co. since he needs parts for this refrigerator."

"Our impression is that the Rice Products Co. is now out of business, but I would appreciate your advising me if we are correct in this respect, and if so, whether you know of any source of service for Rice refrigerators."

Answer: The Rice Products Co. has been out of business for some years. We understand that service parts for these refrigerators can be obtained from the Rex Cooling Industries, 291 Adams St., Brooklyn, N. Y.

'Marion' Ranges

No. 3393 (Dealer, Illinois)—"Please send manufacturer's name and address of Marion Electric ranges."

Answer: Marion Electric ranges are manufactured by the Rutenber Electric Co., Marion, Ind.

Manuals For Design Of Winter Systems

No. 3394 (Forced Warm Air Heating System Dealer, Virginia)—"Please send us list of books, non-technical, pertaining to layouts, designs, and calculations for winter warm air conditioning. We are not interested in cooling or refrigeration, but would like books on residential heating in connection with warm-air furnaces."

Answer: Manuals A-2, A-3, A-6, and A-7 in the series of "Air Conditioning Made Easy" manuals, written by F. O. Jordan, give this information on the

different phases of winter air-conditioning systems, and are written so that the information is easy to digest.

Defrosting Trays

No. 3395 (Refrigeration Service Co., Calif.)—"Can you give us any information in regard to who manufactures the glass defrosting trays for refrigerators."

Answer: Glass defrosting trays are made by the following manufacturers: Sneath Glass Co., Hartford City, Ind. McKee Glass Co., Bullitt Ave., Jeanette, Pa. Corning Glass Works, Corning, N. Y.

Seeks Story on Selling Of Reconditioned Units

No. 3396 (Advertising Agency, New York)—"We want very much to find an article which appeared in your magazine about selling reconditioned refrigerators in Philadelphia."

"Our copy of the issue containing this article has been clipped, and we are unable to find in what number it appeared. If you can identify it by this brief description, would you be good enough to send us a tear sheet?"

Answer: The Jan. 11, 1939 issue of AIR CONDITIONING & REFRIGERATION NEWS contained the story on trade-in practices in Philadelphia, and the March 29 issue contained similar information for the city of Hartford, Conn.

2 and 3-Year Rates

No. 3397 (Dealer, Indiana)—"Through some hook or crook, we did not renew our subscription to the AIR CONDITIONING & REFRIGERATION NEWS when it expired last fall. Please advise the writer as to the renewal prices for one, two, or three years."

Answer: The subscription rate to AIR CONDITIONING & REFRIGERATION NEWS is \$4.00 a year; two years for \$7.00; and three years for \$10.00.

Rebuilding Service

No. 3398 (Refrigeration Service Co., Iowa)—"Please give me names of companies in Chicago, Ill. or Minneapolis, Minn. with refrigerator rebuilding service, or a company I can obtain rebuilt household units from."

Answer: See below.

No. 3399 (Dealer, Ohio)—"Can you give me the names of a rebuilding company that rebuilds General Electric Monitor Top Units?"

Answer: See below.

No. 3340 (Distributor, Oregon)—"In one of your recent News you had something about an independent service organization that was overhauling household boxes for dealers on a flat charge."

"Would it be possible for me to get in touch with such an organization so that I could get a line on their prices as I am planning on starting such a service shop here in Portland, Ore."

Answer: Contact the following companies regarding refrigerator rebuilding services:

Rex Refrigeration Service, Inc.
2226 S. State St., Chicago, Ill.
Refrigeration Maintenance Co.
321 E. Grand Ave., Chicago, Ill.
G & G Service Co.
5801 Dickens Ave., Chicago, Ill.
Federal Refrigerator Corp.
57 E. 25th St., New York, N. Y.

New Directory & Market Data Material Available

No. 3401 (Manufacturer, Illinois)—"In looking over your 1935 Refrigeration & Air Conditioning Directory, Volume 1, we note on page 286 that five manufacturers are listed under Cold Controls whereas on pages 290 and 292 a great many manufacturers are almost duplicated under the headings Temperature Controls and Pressure Controls. Would you please define the three headings above so that we can distinguish the difference between them?"

"In the 1934 Refrigeration Directory & Market Data Book you show on pages 410 to 442, inclusive, specifications on household refrigerators. We have been looking for more recent information on specifications but do not find it. Will you please tell us where later specifications can be found?"

"Can you give us offhand the approximate number of electric household refrigerators manufactured and sold for the years 1935-6-7-8?"

Answer: We believe you will find that in the latest edition of this book, the 1939 Refrigeration & Air Conditioning Directory, these items are properly designated. This directory, the Buyer's Guide of the refrigeration industry, sells for \$1.00.

You will find the other information you are looking for in two of our publications, the 1935 Refrigeration & Air Conditioning Market Data Book, and the 1936 Refrigeration & Air Conditioning Specifications Book.

The 1936 Specifications Book includes specifications of all makes and models of household and commercial refrigeration units through 1936 and sells for \$2.00 per copy. This information for 1937 and 1938 has not yet been made available.

You will find all available statistics on refrigeration and air conditioning up to 1935 in the 1935 Market Data Book. We have not published a revised edition of this book, but have compiled a folder containing reprints of various tabulations of refrigeration and air-conditioning statistics covering the years 1935, 1936, 1937, and 1938, which have been published in AIR CONDITIONING & REFRIGERATION NEWS. The Market Data Book, formerly priced at \$3.00 is now available together with the folder of additional information at only \$1.50.

The Most Accurate Control Valve for Small Capacity Systems

The "TK" Thermo Valve
Alco Valve Co., St. Louis, Mo.

SUPERIOR
DIAPHRAGM PACKLESS VALVES,
MANIFOLDS - ACCESSORIES
AND FITTINGS — FOR THE
REFRIGERATION AND AIR
CONDITIONING INDUSTRY
SOLD BY LEADING JOBBERS EVERYWHERE

SUPERIOR VALVE & FITTINGS CO. PITTSBURGH, PA.

**A Dehydrator that is really
Dry. Mueller Brass Co.
Dri-Drier.**

MUELLER BRASS CO.
Port Huron, Mich.

**Anaconda Copper
Refrigeration Tubes**
Easily bent!

ANACONDA
Tubes for every purpose
Ducts, fittings, valves, etc.

THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

**For Information on Motors
FOR ALL TYPES OF
Air Conditioning and
Refrigeration Equipment**
WRITE TO

Wagner Electric Corporation
2441 Plymouth Ave., St. Louis, Mo.

Condensing units that
are superior in capac-
ity and performance.
Sizes from $\frac{1}{2}$ to 15 h.p.

Universal Cooler Corp., Detroit

**Use CHICAGO SEALS
for seal replacements**
A complete line in all sizes
CHICAGO SEAL CO.
30 North Wacker Dr., Chicago

**GET PEAK PERFORMANCE
with SPORLAN
Controlled Performance VALVES**
An unique
Unusually long life

GRILLOMETER
"THE YARDSTICK OF THE AIR"
A Direct Reading Air Velocity Meter
We Also Make Filter Gauges and
Draft Gauges

DETROIT AIR METER CO.
P.O. BOX 1473, DETROIT, MICH.

DISPLAY CASES
Write for details of
this sensational new
100% PORCELAIN
Display Case line
MIDWEST MFG. COMPANY
Galesburg, Illinois
THE A FREN
G

Major Appliances

Talk 'Dollars & Cents' To Sell Water Heaters, Salesman Advises

NEW HAVEN, Conn.—A "facts and figures" story that proves electric water heating to be cheaper, in dollars and cents, than any "combination" system is the wedge that pries open many apparently closed water heater sales for Edgar H. Dowson of Electric Illuminating Co. here.

A first-quarter prize winner in Modern Kitchen Bureau's letter-writing contest for water heater salesmen, Mr. Dowson wins many of his orders from prospects "sold" by builders and architects on a combination house and water-heating arrangement, by showing them that

it actually costs more to do without the equipment than to use it.

Mr. Dowson gets across an early story of the electric water heater's cleanliness, labor and worry saving, comfort, and economy advantages, but saves his most telling sales punches for the "cost of operation" argument.

"The fallacy in a dual installation," he tells the prospect, "is that a furnace cannot serve two masters—house heating and hot water requirements—at the same time, with complete efficiency and satisfaction to either one.

"Architects and heating engineers agree that a house heating furnace must have 20% additional heating capacity when the hot water supply for the home is heated by the furnace.

"This increased capacity—necessary in the dual system—calls for an additional investment . . . directly chargeable to furnishing hot water.

"A furnace and an oil burner have a definite life span. The usual life of a good furnace is 15 years, and for an oil burner, seven years. This is measured ordinarily in operating months; so that a furnace operating seven months of the year has a life span of (15 x 7) 105 operating months.

"If the furnace and oil burner are operated five additional months each year for summer hot water, it is definitely shortening their life by that much.

"Take for example:

"(a) A furnace and oil burner of sufficient capacity to care for domestic hot water in addition to house heating, operating seven months for both, and five months for hot water alone.

"Investment:

Furnace	\$200
Oil burner	220
Total	\$420

"(b) An insulated galvanized tank, indirect heater, safety devices, and pipe connections.

"Investment:

Equipment	\$ 65
Total	\$485

"Then the following is chargeable to hot water:

(a) 20% of furnace and oil burner (\$420)	\$ 84
(b) 100% on auxiliaries	65
Total investment	\$149

"2. Interest:

5% on total investment of \$149.....	\$ 7.45
--------------------------------------	---------

"3. Wear-out and maintenance:

(a) Furnace, life 105 operating months 7 winter months—20% of 7/105 of \$200	\$ 2.67
5 summer months—100% of 5/105 of \$200	9.52

(b) Oil burner, life 49 operating months. 7 winter months—20% of 7/49 of \$220	6.29
5 summer months—100% of 5/49 of \$220	22.45

(c) Tank, etc., life 6 years. 12 months—1/6 of \$65	10.83
Total	\$51.76

"Expense in operating an electric water heater:

"Use of hot water—1,500 gallons per month. Rate on electricity—1.5¢ per kWh.

"1. Investment:

30-gallon metal tank, installed.....	\$105
--------------------------------------	-------

"2. Interest:

5% on total investment of \$105.....	\$5.25
--------------------------------------	--------

"3. Wear-out and maintenance:

"The metal tank is guaranteed for 20 years.

"Under factory tests the heating units—thermostats and insulation have operated for 35 years.

"Take a fair average of 25 years
1/25 of \$105
 \$4.20 |

"4. Electricity:

375 kWh. for heating 1,500 gallons per month. Total amount for 12 months—4,500 kWh.

"Total cost of domestic hot water—with rustproof tank and at 1.5¢ rate:

For year	\$76.95
----------------	---------

For month	6.41
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Brunhouse Directs S-W Range Sales

CHICAGO—Robert S. Brunhouse has been appointed sales manager of Stewart-Warner's electric range division. He will also direct water heater sales. Previously included in the appliance division under the sales management of J. F. Ditzell, the electric range division has been designated as a separate sales unit in the Stewart-Warner organization.

The awarding of bulk contracts for electric ranges and water heaters has necessitated the setting up of a separate factory and field organization to handle this business, it was announced.

The national housing and apartment house project division of the company will continue under the direction of Mr. Brunhouse.

N. J. Homemaker Trades Florida Vacation For Up-To-Date Kitchen

WEST ORANGE, N. J.—Given your choice of a winter vacation in Florida or a complete modern kitchen installed in your home, which would you take? Well, a West Orange homemaker was faced with that problem—and she chose the kitchen!

This woman was accustomed to spending her winters in Florida, and expected to do so last year. But last fall she attended a "Homemaking and Cookery" course conducted by Miss Loretta Brady, home economics consultant of Public Service Electric & Gas Co.'s Orange office, at West Orange High's "Leisure Hour" school.

After hearing Miss Brady talk on modern kitchens and modern kitchen equipment, the homemaker began to wonder if she wouldn't be wiser to forego the sunshine and flowers for one year and to invest her money in an up-to-date kitchen instead. After Miss Brady came to her home and talked the matter over with her, she was convinced.

So under the home economist's direction, a large gas refrigerator, a six-burner gas range, and a sink with electric dish washer and disposal unit were installed. Cabinets and counter-type work surfaces also were provided. Floors and counter tops were covered with washable linoleum.

Miss Brady also suggested a ceiling fixture for general illumination and a supplementary light over the sink. Concealed lighting units were recessed in the base of the wall cabinets to provide light for the work surfaces.

And not only that, but this same woman is now planning a new laundry, and is a prospect for an ironing machine.

\$4,000,000 Apartment Bldg. To Use 1,102 Refrigerators

LOS ANGELES—A 1939 model electric refrigerator will comprise part of the up-to-date kitchen equipment in each of the 1,102 separate suites of the Wyvernwood apartments under construction here.

Representing the largest investment of private capital in a single rental housing project with F.H.A. insured financing, the \$3,845,000 Wyvernwood project is not one building but a series of 143 two-story structures covering an area of 30 acres. An additional 40 acres will be devoted to landscaped gardens and playground space.

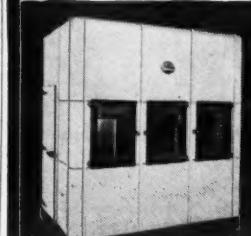


THE BUYER'S GUIDE



NEW 1939 FEATURES

Tyler's original welded steel construction is still the most advanced in the commercial refrigeration field. And the 1939 line is the greatest ever. New improvements include wider doors, for greater accessibility; wider front glass for increased visibility and new, patented NON-GLARE lighting system for brighter display.



TYLER FIXTURE CORP. Dept. R, NILES, MICH.

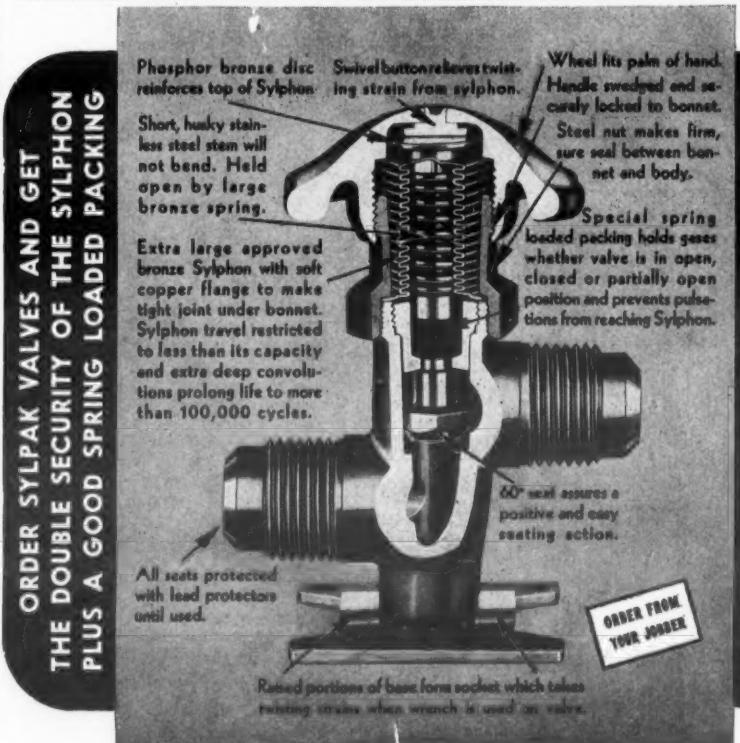
DOUBLE YOUR PROFITS Selling THE PROFIT LINE FOR '39

Refrigerator and compressor sales go together. Sell both on one contract.

THE SHERER FRANCHISE OFFERS: Complete line of cases, coolers and boxes. *New equipment under development opens new fields for compressor sales.

*Layout department—Store layouts without obligation. Sherer advertises by mail and in trade publications. Write for catalog and franchise details, mentioning territory desired.

SHERER-GILLETT CO., MARSHALL, MICHIGAN



IMPERIAL Air Conditioning and Refrigeration Products
THE IMPERIAL BRASS MFG. CO., 565 So. Racine Ave., Chicago

You Asked for it—RANCO Built It!

RJS-830 is the general replacement of wide adaptability. It is extremely easy to install - either vertically or horizontally. Single dial - fits practically all household refrigerators.

Mounting brackets of RJS-830 have wide adjustment to fit all control mounting spacings. The dial pointer may be rotated on its shaft to line up with printed evaporator shields. A long dial pointer shaft permits clearance for the pointer regardless of the thickness of the shield and dial plate.

Ranco quality! Ranco dependability! At the right price. Ask your Ranco jobber.

Ranco INC.,
Columbus, Ohio, USA

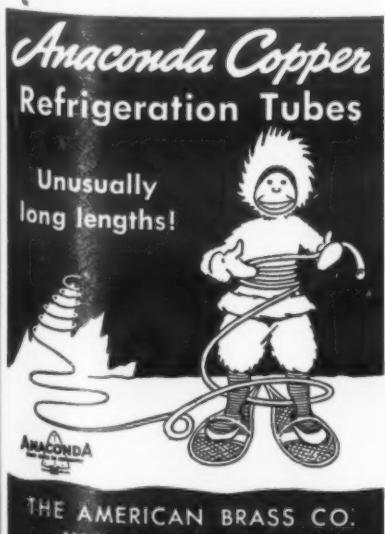


PARTNERS FOR 12 YEARS

U.E.I. and Refrigeration-Air Conditioning Industry
For 12 years U.E.I. has supplied this industry with trained, competent shop mechanics, service and installation men. Our graduates are trained as you want them trained.

Free Placement Bureau
U.E.I. trained men available everywhere. Use our Free Placement Bureau when you need help.

UTILITIES ENGINEERING INSTITUTE
404 N. Wells St. Established 17 West 60th St., Chicago, Illinois 1927
New York, N.Y.



Owners of Oldest Units Swap Their Brands

BIRMINGHAM, Ala.—Winners of an "oldest electric refrigerator" contest sponsored by Pizitz Dry Goods Co. had to swap brands when they accepted the two new refrigerators offered as prizes by the store.

Owner of the oldest refrigerator reported in the contest, a 1920 Kelvinator, was awarded a new 8-cu. ft. Frigidaire. Second prize, a 7-cu. ft. Kelvinator, went to the owner of a 1924 Frigidaire.

Hundreds of entries were made in the contest, reports W. C. Allen, the store's appliance manager. Besides Kelvinators and Frigidaires, a number of Servel units more than 10 years old were reported. The contest, aimed at the replacement market, resulted in a number of sales.

Gale & Evans Move Chicago Outlets

CHICAGO—Both Gale Products Co., electric refrigerator manufacturer, and Evans Products Co., manufacturer of oil heaters, have moved their Chicago headquarters to the Merchandise Mart, where they occupy a joint display room in Space 1472.

C. L. Bradford, manufacturers agent, represents both lines here. He also handles the line of Belmont Radio Corp.

\$1,163,257 In Taxes

WASHINGTON, D. C.—Excise tax collections on mechanical refrigerators amounted to \$1,163,257 during May, compared with \$708,158 in the same month last year, Bureau of Internal Revenue statistics reveal.

MANUFACTURERS ACCLAIM

ACE Hard Rubber "Loxit" Units are widely praised by manufacturer and dealer. Eight exclusive engineering improvements, yet they cost no more than ordinary doors. Obtainable in a wide range of sizes for equipping modern refrigerated display cabinet types,

storage and service doors, glazing strips, trim, etc.

Write for new catalog "Ace Hard Rubber Equipment for Refrigerated Display Cases."

American Hard Rubber Co., 11 Mercer St., New York . . . 111 West Washington St., Chicago, Ill. . . Akron, Ohio.

ACE "LOXIT" PATENTED DOORS

TYPE
888



WRITE
FOR
CATALOG

Gas bubbles passing under liquid sight port reveal shortage of refrigerant in system. Soldered brass shell. Sight port cap and gasket provide added seal and protects glass from breakage. Hemispherical screen has 90% greater filtering area than usual flat disc. 120 mesh reinforced brass screen.

HENRY VALVE CO. 1001-19 N. SPAULDING AVE.
CHICAGO, ILLINOIS
STOCKED BY LEADING JOBBERS

PURO ELECTRIC WATER COOLERS

Thoroughly reinforced all steel attractively finished cabinets. Complete line of different Models and Capacities. Write for details and sales prices.

Puro Filter Corporation of America
440 Lafayette Street, New York City
Spring 7-1800



ROTARY SHAFT SEALS

Increased customer good-will and lowered cost of maintenance always follow their use. A trial will prove their superiority.

IMPROVED MODELS • LOWER PRICES • SEE YOUR JOBBER

ROTARY SEAL COMPANY
803 West Madison Street, Chicago, Ill.

CONTINENTAL EUROPEAN OFFICE: Waidorpstraat 52, Den Haag, Netherlands. CANADIAN OFFICE: 382 Victoria Avenue, Westmount, Montreal.



ACTION-AIR SYSTEM

Stops
Spoilage
Shrinkage
Taste Transfer
Excessive Frosting
in Walk-In Coolers

THE BROWN CORP., 652 Bellevue Ave., Syracuse, N.Y.

MAN WANTED to Sell This Profitable Action-Air System in Your Territory

Get the exclusive sales rights to this fast-selling Action Air System which solves air circulation problems in coolers. One easy demonstration convinces customers that Action Air prevents dead air spots, freezing zones, humidity difficulties and excessive frosting. It pays for itself by reducing shrinkage and spoilage, by saving operating expenses and electricity. Ease to install creates new customers and repeat business. Long list of satisfied users. Be the only dealer in your territory to sell these machines. Write today for money-making proposition.

SERVICE WITH SPEED!

Complete Stocks of Air Conditioning and Refrigeration Supplies and Equipment

THE HARRY ALTER CO.

1728 S. Michigan Avenue, Chicago,
NEW YORK DETROIT CLEVELAND ST. LOUIS
161-163 Grand St. 1013 John R. St. 4506 Prospect Ave. 2910 Washington Ave.

Pressure Water Cooler Sales Show Big Gain In May Over April; Nema Commercial Sales Total 33,290

The following report of commercial refrigerating equipment sales for May, 1939 was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by the following

16 companies:
Baker Ice Machine Co., Inc., Brunner Mfg. Co., Carrier Corp., Crosley Corp., Frigidaire Div. General Motors Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Co., Nash-Kelvinator Corp., Merchant & Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Uniflow Mfg. Co., Universal Cooler Corp., Vilter Mfg. Co., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

	SALES FOR MAY, 1939	Domestic Quantity	Canadian Value	Other Foreign Quantity	Total World Value			
1. Bottle Water Coolers—Complete	686	\$ 45,307	3	\$ 1,984	718 \$ 47,499			
2. Pressure Water Coolers—Complete	2,415	236,997	18	1,856 143	13,302 2,612 252,155			
3. Water Coolers—Low Side Only	99	9,679	...	2	122 101			
4. Ice Cream Cabinets—Complete	5,580	870,746	483	69,509 64	9,808 6,127 950,063			
5. Ice Cream Holding Cabinets Only (Remote)	360	48,192	9	1,050 4	493 373 49,735			
6. Bottle Beverage Coolers—Complete	5,340	555,120	139	11,977 67	7,296 5,546 574,393			
7. Beverage Coolers (No High Sides)	77	7,637	...	4	190 81			
8. Milk Coolers—Complete	42	7,417	...	...	42 7,417	
9. Milk Cooling Cabinets (No High Sides)	5	805	...	...	5 805	
10. Commercial Evaporators—Not Reported Above (Including Cold Diffusers, Brine, and Other Spray Evaporators, Etc.)	3,154	142,633	355	11,311 562	24,507 4,071 178,451			
11. Condensing Units Less Than 1/2 Hp.	2,746	119,590	50	2,646 813	22,852 3,609 145,088			
12. Condensing Units 1/2 Hp.	3,685	228,014	79	5,260 797	27,127 4,561 260,401			
13. Condensing Units 1/2 Hp.	2,012	171,317	47	4,276 316	28,832 2,375 204,425			
14. Condensing Units 1/2 Hp.	1,092	123,793	39	4,894 174	14,541 1,305 143,228			
15. Condensing Units 1 Hp.	644	89,966	21	3,179 108	9,108 773 102,253			
16. Condensing Units 1 1/2 Hp.	392	69,365	7	1,224 57	10,180 456 80,769			
17. Condensing Units 2 Hp.	217	44,622	3	777 19	4,428 239 49,827			
18. Condensing Units 3 Hp.	113	30,756	1	200 78	4,758 192 35,714			
19. Condensing Units 5 Hp.	37	14,559	...	3 1,191	40 15,750			
20. Condensing Units 7 1/2 Hp.	11	6,741	...	2 1,512	13 8,253			
21. Condensing Units 10 Hp.	5	4,643	...	1 590	6 5,233			
22. Condensing Units 15 Hp.	12	9,787	...	...	12 9,787	
23. Condensing Units 20 Hp.	1	1,251	...	...	1 1,251	
24. Condensing Units 25 Hp.	...	...	...	...	...
25. Condensing Units 30 Hp.	3	4,528	...	...	3 4,528	
26. Condensing Units 40 Hp.	8	11,174	...	...	8 11,174	
27. Condensing Units 50 Hp.	...	...	...	...	...
28. Total—All Condensing Units (11 to 27)	10,978	930,106	247	22,456 2,368	125,119 13,593 1,077,681			
29a. Condensers—Sold Separately Shell & Coil or Shell & Tube	8	312	...	...	8 312	
29b. Evaporative Type	7	3,966	...	6 868	13 4,834			
30. Total All Commercial Refrigeration	...	\$2,858,917	...	\$118,367	...	\$183,689	...	\$3,160,973

Gain of 11,276 Household Refrigerator Sales Recorded In May By 17 Nema Companies

The following 17 companies reported sales to the Refrigeration Division of the National Electrical Manufacturers Association (Nema) on household electric refrigerators for May, 1939:

Apex Electrical Mfg. Co., Crosley Corp., Edison General Electric Appliance Co., Inc., Frigidaire Div. General Motors Corp., Gale Products Div. Outboard Marine & Mfg. Co., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div. Nash-Kelvinator Corp., Landers, Frary & Clark,

Leonard Div. Nash-Kelvinator Corp., Norge Div. Borg-Warner Corp., Philco Refrigerator Co., Sparks-Withington Co., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co.

The sales of the reporting companies include units manufactured for the following concerns: Montgomery Ward & Co., Potter Refrigeration Corp., and Sears, Roebuck & Co.

	SALES FOR MAY, 1939	Domestic	Canadian	Other Foreign	Total World
Lacquer (Ext.) Cabinets Complete					
1. Chest	387	3	90	480	
2. Less than 3 cu. ft.	...	176	69	245	
3. 3 to 3.99 cu. ft.	4,011	89	595	4,695	
4. 4 to 4.99 cu. ft.	25,706	2,581	2,755	31,042	
5. 5 to 5.99 cu. ft.	50,767	2,478	1,758	55,003	
6. 6 to 6.99 cu. ft.	140,443	1,997	1,498	143,938	
7. 7 to 7.99 cu. ft.	5,212	46	46	5,304	
8. 8 to 9.99 cu. ft.	9,881	108	349	10,338	
9. 10 to 12.99 cu. ft.	45	...	4	49	
10. 13 cu. ft. and up.	...	...	...	...
11. Total Lacquer	236,452	7,478	7,164	251,094	
Porcelain (Ext.) Cabinets Complete					
12. Up to 4.99 cu. ft.	421	1	7	429	
13. 5 to 5.99 cu. ft.	3,424	112	168	3,704	
14. 6 to 6.99 cu. ft.	10,367	56	179	10,602	
15. 7 to 7.99 cu. ft.	602	...	5	607	
16. 8 to 9.99 cu. ft.	3,166	23	141	3,330	
17. 10 to 12.99 cu. ft.	213	2	22	237	
18. 13 cu. ft. and up.	264	2	16	282	
19. Total Porcelain	18,457	196	538	19,191	
20. Total—Lines 11 and 19	254,909	7,674	7,702	270,285	
21. Separate Systems 1/4 hp. or less	110†	...	1,111†	1,001	
22. Separate Household Evaporators	6	327	1,168	1,501	
23. Total—Lines 20, 21, and 22	254,805	8,001	9,981	272,787	
24. Condensing Units 1/4 hp. or less	482	349	1,443	2,274	
25. Cabinets—No Systems	28†	...	5	33	
Index Value* of Total Dollar Sales	102.	193.	86.4	103.	

*Based on weighted sales for 1934

Commercial Service

Thermostatic Expansion Valves Control Temperatures In Brunswick Fountain

By Arch Black and Dean C. Seitz

Brick & Bulk Compartment

The amount of gas permitted to enter the coils is regulated by the expansion valve which is located in the dry storage compartment, and the temperature of this gas is controlled by means of the switch setting on the compressor. The recommended basic switch settings are given in Table 1.

The differential in temperatures between the brick and bulk compartment when required is obtained and maintained by the amount of gas-filled tubing around the two compartments. The switch on the compressor is set so that the required temperature is maintained in the bulk compartment, and it will automatically be approximately 10° F. higher than the brick compartment.

For example, if the bulk temperature is held at 8-10° F., the brick would follow along with zero to

2° F. Any change in the bulk temperature would be reflected in the temperature of the brick compartment. This is because of the fact that brick compartment is smaller and because the lower compartment is smaller and because the lower portions of the coils around the bulk compartment are "starved" when both brick and bulk temperatures are desired.

Fig. 5 (June 28 issue) outlines the refrigerant circuit in the 1939 fountains. Note that from the bulk compartment three "wells" extend into the wall of the dry storage compartment. These wells are nothing more or less than tubes soldered to the copper coils which are wound around the bulk compartment, and constructed in the bulk storage liner, located on top of bottom, third and fourth passes from bottom, and are so located that it is quite a simple operation for the service engineer to place in any of the wells the bulb of

the thermostatic expansion valve located in the left-hand corner of the dry storage compartment.

The location of the thermal bulb controls the point at which the bulk compartment coils are permitted to fill with gas. Changing the location of the thermal bulb will vary this point, and if it is placed in the uppermost well, a minimum amount of coil is allowed to fill with gas, the quantity increasing as the thermal bulb is placed nearer the bottom.

The bulk coil is either "starved" or "flooded" in accordance with the temperature desired. The service engineer should bear in mind that the coil around the brick compartment is always filled with gas, and regulating its temperature by means of the location of the thermal bulb affects the bulk compartment coils only. In other words, the same temperature is desired for both the brick and bulk compartments, the compressor setting is changed as recommended in Table 1, the thermal bulb of the thermostatic expansion valve is placed in the lowest well.

This permits the coils around both compartments to be filled with approximately the same amount of gas and a uniform temperature is maintained.

When two temperatures are desired the switch setting of the pressurestat is altered, but with the above recommendations that the thermal bulb is accordingly located, in the middle or upper well, and automatically there will be an approximate 8 to 10° F. temperature difference between the brick and bulk compartments.

All Brunswick fountains when shipped from the factory are adjusted

TABLE 1

Methyl Chloride	Cut In	Cut Out
All Bulk	20 lbs.	3 lbs.
Brick & Bulk	20 lbs.	0 lbs.
"Freon"		
All Bulk	28 lbs.	8 lbs.
Brick & Bulk	28 lbs.	4 lbs.

Note: To change an all bulk fountain to brick and bulk, frequently it is only necessary to change the switch settings, and the temperatures automatically adjust themselves to the desired point.

for brick and bulk temperatures unless otherwise specified.

Control of Temperatures

The non-adjustable thermostatic expansion valve regulates the amount of refrigerant which enters the syrup rail coil and the dry storage coil, and metering of the amount of refrigerant to the instantaneous cooler has already been described. The back pressure from the syrup rail and dry storage are practically the same as the back pressure from the "Frigid Flow" cooler and the one pressure regulating valve, set at 34 lbs. for "Freon" and 25½ lbs. for methyl chloride, controls the amount of gas liberated in this circuit and consequently the temperature.

Stopping & Starting

The demands for refrigeration in the syrup rail or dry storage compartment can at times open the pressure regulating valve and build up enough pressure to cut in the condensing unit, but in the majority of cases the instantaneous cooler will be responsible for the starting of the unit. Each time this happens, the temperature in the syrup rail, dry storage, and ice cream section is brought down to a minimum. This differs to some extent from previous systems described.

For example, in the Bastian-Blessing fountain the ice cream will receive refrigeration only if it needs it, even though the condensing unit may be operating on the water cooling system. In the Brunswick system this is not so.

However, the Brunswick system, with its instantaneous coolers, is similar to others with such coolers, in the respect that the condensing unit always cools the water first inasmuch as instantaneous coolers work at a relatively high back pressure. If sufficient capacity is left over after cooling the water then the ice cream will receive its refrigeration. Consequently, it is quite possible to overload to an extent that the ice cream will receive very little refrigeration.

On the other hand it is entirely possible that a condition can be created on a fountain in a given location with a setting as recommended in Table 1 that the ice cream will be too hard due to the demand on the instantaneous cooler.

When a fountain is located in a store where the demand for cold water and soda is quite high in comparison to the demands for brick or bulk ice cream it will mean that the condensing unit will start and stop frequently. This will result in the refrigerant surrounding the ice cream compartments, being brought to its minimum temperature too frequently, thereby lowering its average temperature and ultimately bringing the temperature of the ice cream too low.

Remember there is always a time element to be considered during the "on" or "off" cycle of the condensing unit to govern the average mean temperature of the refrigerant. With given "cut in" and "cut out" points the mean refrigerant temperature will vary with the length of time of the "on" and the "off" cycle.

By giving these points due thought it will be realized that in some cases it is essential to deviate from the recommended pressure control settings. These should be considered as basic. In the case just mentioned, where there is a frequent starting and stopping of the condensing unit due to the comparative high demand for cold water or soda, it may be necessary to raise the "cut out" point to prevent the ice cream from becoming too hard.

Where a fountain is in a location

that has little demand on the instantaneous cooler it may be necessary to lower the "cut out" point in order to maintain the required temperature. It is, however, recommended that the "cut-in" point be left as is.

(To Be Continued)

'Reverse the Charges'

Shortly after most service and installation men learned to walk, they were initiated into the delights of that marvelous creation—the ice cream cone.

At first, parents and relatives paid for the cones, but soon the boys' own nickels and dimes were paid in to the soda fountain's owner. Today besides buying cones for themselves, service men take home ice cream to the wife and youngsters.

Service men have spent a lot of money at confectionery stores. Why not get it back?

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REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS WANTED

MAN, 35 years old, graduate refrigeration and mechanical engineer. Thirteen years experience with large manufacturers in research, production and all phases of engineering and design, covering household hermetics as well as large commercial refrigerating compressor systems. Employed, but anxious to make new connection. Married. Protestant. Member A.S.R.E. Will go anywhere. Box 1158, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

ENGINEER WANTED. American corporation considering manufacture and sale of household and commercial refrigeration and air conditioning equipment Australia requires competent engineer of wide experience to supervise manufacture, engineering and merchandising. Confidential treatment of applications addressed to Box 1157, Air Conditioning & Refrigeration News.

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SALESMAN with experience in Essex and Union Counties, New Jersey, for complete line of Carrier commercial refrigeration equipment. Communicate with Mr. Wood, THE CONDITIONING CO., 308 Broad Street, Newark, N. J., giving information and compensation expected.

WANTED: One high-class domestic refrigerator salesman and one high-class commercial refrigeration and air conditioning salesman. Reply giving full particulars, as well as references, as this job carries both salary and commission. Reply direct to B. C. Nabers, Pres., HOME APPLIANCE SALES, INC., 806 Government Street, Baton Rouge, Louisiana.

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CASH FOR your coin meters. Wanted: Any quantity with 15, 20 or 25-cents-a-day gear. Write at once and advise the

condition and quantity for sale. State price you expect. Address Box 1156, Air Conditioning & Refrigeration News.

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PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

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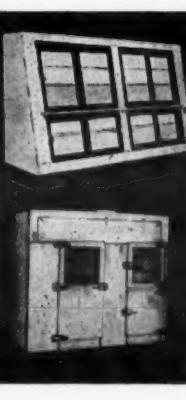
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